Bulletin of the British Ornithologists' Club

Volume 126 No. 1
March 2006

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MEETINGS are normally held in the **Sherfield Building** of **Imperial College**, South Kensington, London SW7. The nearest Tube station is at South Kensington; a map of the area will be sent to members, on request. (Limited car parking facilities can be reserved [at a special reduced charge of **£5.00**], on prior application to the Hon. Secretary.)

The cash bar is open from **6.15 pm**, and a buffet supper, of two courses followed by coffee, is served at **7.00 pm.** (A vegetarian menu can be arranged if ordered at the time of booking.) Informal talks are given on completion, commencing at about 8.00 pm.

Dinner charges are **£21.00** as from **1 January 2006.**

FORTHCOMING MEETINGS

See also BOC website: **http://www.boc-online.org**

26 April 2006—Annual General Meeting at 6.00 pm, followed by **Club Social Evening**. There will be no speaker, but members are invited to bring along a few slides, a short PowerPoint presentation or a specimen (!) of a bird or ornithological subject of topical interest, and to speak for **5–10 minutes** about it. The aim will be to generate discussion and to facilitate the exchange of information between members.

Applications to Hon. Secretary (address below) by ***11 April***

6 June 2006—Major Peter Carr, RM—*Bikes, boats and boobies—an ornithological survey of Diego Garcia*
The Chagos archipelago, comprising over 60 atolls, lies in the heart of the tropical Indian Ocean. Little ornithological research has taken place in the archipelago due to its remoteness and, in recent years, restrictions on entry. The Chagos has large breeding populations of seabirds and, since man departed, has remained virtually undisturbed. Diego Garcia is the largest atoll and only still-populated island (since the mid 1960s a military base) and, as such, has been off-limits to most researchers. Ten atolls of the Chagos have received Important Bird Area (IBA) status due to their breeding seabird numbers and, following the previous expedition by the Royal Naval Birdwatching Society, in August 1997, Peter Carr led a second visit to Diego Garcia, in May–June 2005, to conduct a census of the breeding seabirds of Barton Point IBA. His talk will recount the trials and tribulations of the survey, and also discusses the difficulties of assessing ornithological records from the area due to the paucity of published data.

Applications to Hon. Secretary (address below) by ***23 May***

26 September 2006—Lars Svensson (*et al.*) —*The Almaty skin collection and the birds of Kazakhstan*

7 November 2006—speaker to be announced

5 December 2006—Prof. Jeremy Greenwood—*The future of birds and man*

Overseas Members visiting Britain are especially welcome at these meetings, and the Hon. Secretary would be very pleased to hear from anyone who can offer to talk to the Club giving as much advance notice as possible—please contact: S. A. H. (Tony) Statham, Ashlyns Lodge, Chesham Road, Berkhamsted, Herts. HP4 2ST, UK (or e-mail: boc.sec@bou.org.uk).

Bulletin of the BRITISH ORNITHOLOGISTS' CLUB

Vol. 126 No. 1 Published 5 March 2006

CLUB ANNOUNCEMENTS

Members are reminded that subscriptions for 2006 were due on 1 January. Details for membership correspondence, subscriptions and applications can be found on the inside back cover of the December 2005 issue. All membership issues should now be addressed to the BOC Office, P.O. Box 417, Peterborough PE7 3FX, UK. E-mail: boc.office@bou.org.uk

Correspondence on all general Club matters should continue to be addressed to: The Hon, Secretary, S. A. H. (Tony) Statham, Ashlyns Lodge, Chesham Road, Berkhamsted, Herts. HP4 2ST, UK. E-mail: boc.sec@bou.org.uk

Bulletin Subcommittee

Committee is pleased to announce the formation of a Bulletin Subcommittee with related journal experience, to oversee policy and general operations of the *Bulletin* with immediate effect. With the rapid advances in publishing technologies, and the increasing availability of the Internet, the stage has been reached when consideration must be given to developing a future policy for the publication, production and distribution of the Bulletin. High on the list of priorities is to move towards producing an online version of the Bulletin. The intention is that this group will meet once per year only and that all normal business will be conducted by e-mail. To develop these Bulletin-related policy ideas, offer advice and support to the Editor and the BOC Administration Officer in their respective posts, and to make proposals for approval by the BOC Committee (the BOC Trustees), the following have been appointed:

Prof. C. J. Feare (*Chairman*)
Dr D. R. Wells
R. J. Dowsett
G. M. Kirwan (Editor) *ex-officio*
S. P. Dudley (Administration Officer) *ex-officio*

ANNUAL GENERAL MEETING

The Annual General Meeting of the British Ornithologists' Club will be held in the Sherfield Building, Imperial College, London SW7 at 6.00 pm on Tuesday 25 April 2006.

AGENDA

1. Minutes of the 2005 Annual General Meeting (see *Bull. Brit. Orn. Cl.* 125: 82–84).
2. Chairman's report.
3. Trustees Annual Report and Accounts for 2005 (both to be distributed at the meeting).
   The Hon. Treasurer to propose that the Barrington Fund, with a value at 31 December 2005 of £1,162, be closed and that the proceeds be transferred to the Club's cash deposit account at COIF Charity Funds.
4. The *Bulletin*. Editor's report—G. M. Kirwan.
5. Publications report—Revd. T. W. Gladwin, Chairman JPC.

6. The election of Officers. The Committee proposes that:
   (i) Mr S. A. H. Statham be re-elected as *Hon. Secretary*.
   (ii) Mr D. J. Montier be re-elected as *Hon. Treasurer*.
   (iii) No other changes to the committee are proposed, as all other members are eligible to serve at least one more year in office.
   Ex-officio members (in continuation): Revd. T. W. Gladwin (*Chairman Joint Publications Committee*), Prof. R. A. Cheke (*Hon. Publications Officer*), S. P. Dudley (*Hon. Website Manager*), G. M. Kirwan (*Hon. Editor*) and Prof. C. J. Feare (*Chairman Bulletin Sub-committee*)
7. Any other business of which advance notice has been given.

The 933rd meeting of the Club was held on Tuesday 1 November 2005, in the Sherfield Building Annexe, Imperial College, London. Twenty members and 11 guests were present.

Members attending were: Cdr. M. B. Casement, RN (*Chairman*), Miss H. Baker, I. R. Bishop, Mrs D. M. Bradley, D. R. Calder, S. P. Dudley, D. J. Fisher, F. M. Gauntlett, A. Gibbs, Revd. T. W. Gladwin, D. Griffin, R. R. Langley, Dr C. F. Mann, D. J. Montier, Mrs M. N. Muller, P. J. Sellar, S. A. H. Statham, C. W. R. Storey, Cdr. F. S. Ward, RN, and P. J. Wilkinson.

Guests attending were: Dr R. B. Wynn (*Speaker*), Ms G. Bonham, Mrs J. Calder, Mrs C. R. Casement, Vice-Admiral Sir David Dobson, Mrs M. H. Gauntlett, Mrs J. Gladwin, Mrs M. Montier, C. Muller, N. Robson and Mrs H. Robson.

After dinner, Dr Russell Wynn provided a most illuminating talk with a fine array of photographs on *Chasing migrant seabirds from Europe to Africa, from ship to shore and back again.* Although the substance concentrated on seabirds there were several examples of landbirds found aboard ships. The talk began offshore of the breeding grounds, in the deep cold waters *c.*100–150 km north-west of Shetland. During a research cruise to this area in July–August 2002 large numbers of common seabirds were photographed, and notable shots included a Northern Fulmar *Fulmarus glacialis* eating a Common Jellyfish and a Great Skua *Stercorarius skua* attacking a Northern Gannet *Morus bassanus*. A period of east winds resulted in a fall of migrant landbirds, including a Greenish Warbler *Phylloscopus trochiloides* that survived for two days before returning to land when the ship passed close to Shetland. Moving onshore, a series of images taken on Foula, Shetland, over the last three autumns were displayed, including a variety of resident and migrant birds, and many rarities such as Bobolink *Dolichonyx oryzivorus*, Blyth's Reed Warbler *Acrocepahlus dumetorum* and Pallas's Grasshopper Warbler *Locustella certhiola*. The Manx Shearwater *Puffinus puffinus* colony on Copeland, Northern Ireland, was also illustrated. The second part of the talk commenced by describing how seabirds on their journey south in autumn are often deflected into the English Channel by severe Atlantic storms. Several images of dead storm-driven birds were shown, including Great Skua and European Storm-petrel *Hydrobates pelagicus*. Following their journey further south brought us to the Agadir Basin, between the Canaries and Madeira. A research cruise to this area in November 2004 witnessed a total of 24 Leach's Storm-petrels *Oceanodroma leucorhoa* crash-landing on the ship at night, and a video clip showed one of the many successfully released during daylight. East winds over southern Iberia also produced a large fall of migrant landbirds, including a Cattle Egret *Bubulcus ibis*. The final part of the talk highlighted two recent research cruises to the wintering grounds, areas of oceanic upwelling off north-west Africa. The first cruise, in spring 2003, observed species such as Pomarine Skua *Stercorarius pomarinus*, Sabine's Gull *Larus sabini* and Black Tern *Chlidonias niger* returning north, as well as many immature seabirds preparing to spend their first summer in these warm waters. The second cruise, in summer 2005, was notable for the unprecedented total of 10,000 Wilson's Storm-petrels *Oceanites oceanicus* recorded at the shelf edge in a three-day period. In a brief summary, an explanation was given as to why so many of our breeding seabirds annually make the long journey south, with food being the dominant factor.

The 934th meeting of the Club was held on Tuesday 6 December 2005, in the Sherfield Building Annexe, Imperial College, London. Twenty-two members and seven guests were present.

Members attending were: Cdr. M. B. Casement, RN (*Chairman*), Miss H. Baker, Ms D. V. Breese, D. R. Calder, Ms K. Cook, Dr J. H. Cooper, D. J. Fisher, F. M. Gauntlett, D. Griffin, Dr J. P. Hume (*Speaker*), R. H. Kettle, R. R. Langley, D. J. Montier, Mrs M. N. Muller, P. J. Oliver, A. J. Pittman, Dr R. P. Prŷs-Jones, N. J. Redman, P. J. Sellar, S. A. H. Statham, C. W. R. Storey and P. J. Wilkinson.

Guests attending were: Mrs J. Calder, Mrs C. R. Casement, A. Cheke, Mrs M. H. Gauntlett, Mrs M. Montier, C. Muller and Dr L. Steel.

After dinner, Dr Julian Hume presented an informative discussion on *The parrots of the Mascarenes*. The Psittaciformes are a distinct order of birds that have evolved adaptations (e.g. large jaws/ zygodactyl foot) for feeding, climbing etc. Parrots have been popular both as food items and as pets, and primarily because of this, a number of species have become extinct or are critically endangered. Many species have colonised remote oceanic islands and island groups, and in some cases speciated to such a degree that their affinities are now difficult to determine. The volcanic and isolated Mascarenes, comprising Réunion, Mauritius and Rodrigues, are situated in the south-west Indian Ocean. As a consequence of numerous sea-level changes, parrot colonists were able to island hop to the Mascarenes within the last 5–7 million years, with south-east Asia almost certainly the founding source. It can also be determined that at least 3–4 parrot colonising events have taken place, with the first species arriving on Mauritius and Rodrigues very early in the islands' history. The second and third events populated all three islands, whilst a possible fourth occurred in the last 1.5 million years and populated only Mauritius and Réunion. Due to evidence derived from contemporary accounts, contemporary illustrations, the fossil record and preserved specimens, the Mascarene parrots appear to be derived from the Psittaculini group of parrots that radiated through south-east Asia and into northern Australia. The number of endemic species is high with Mauritius harbouring three sympatric species, Réunion possibly four and Rodrigues two. Three monotypic genera are present, whilst the genus *Psittacula* comprises the remaining species. All Mascarene species were generally shorter in the wing, longer in the leg and had proportionately larger, wider jaws than psittaculine counterparts found on the mainland. Due primarily to man's interference, all Mascarene parrots are now extinct bar the Echo Parakeet *Psittacula echo* of Mauritius. This species, although numbering fewer than a dozen individuals in the 1980s, has now recovered to over 300 individuals due to the conservation efforts of the Mauritius Wildlife Foundation.

The name *Cyanocorax mystacalis*

In the last issue of the Bulletin I demonstrated that the author of the name *Astur kienerii* was the Comte de Sparre. I am indebted to Michael Walters for suggesting that I add that *Pica mystacalis* (also named in Fig. 1, on p.317) was also associated with the initials 'G.S.' and that the correction in authorship should probably be extended to this name too. I have consulted the Table Méthodique for 1831–38 again to be sure, and find that whilst *Astur kienerii* on p.2 was attributed to 'G. de Sparre' the name *Pica mystacalis* on p.5 was attributed to 'G. Sparre'. Knowing that the full name was de Sparre, it is therefore correct that the name *Cyanocorax mystacalis* (Geoffroy St. Hilaire, 1835), as used in Peters's Check-list and in all other modern works, be corrected to *Cyanocorax mystacalis* (de Sparre, 1835).

Edward C. Dickinson

A new subspecies of Buff-winged Starfrontlet *Coeligena lutetiae* from the north-west Andes of Ecuador

by Carlos Sánchez Osés

Received 26 January 2004; final revision received 1 November 2005

Buff-winged Starfrontlet *Coeligena lutetiae* occurs at 2,500–4,800 m, from the Quindio region, in the Central Andes of Colombia, south on the west slope to Piura in northern Peru, and on the east slope to Lagunillas, on the border between Ecuador and Peru. DeLattre & Bourcier (1846) described the species as *Trochilus Lutetiae* and gave 'volcan du Puracé, près de Popayán [Colombia]' as the type locality. In subsequent taxonomic revisions, it was placed in the genus *Helianthea* Gould, 1848 (Bonaparte 1850, Elliot 1874, 1878, Gould 1861, Hartert 1900, Reichenbach 1853) and later by Simon (1921) in *Calligena* Simon, 1921. Goodfellow (1900) described the form *Helianthea hamiltoni* from Papallacta in eastern Ecuador. Thereafter, Peters (1945) considered *H. hamiltoni* a synonym of *lutetiae*, and merged the latter into the genus *Coeligena* Lesson, 1832. This treatment has been accepted in all subsequent taxonomic works, establishing the current monotypy of *Coeligena lutetiae* (Hilty & Brown 1986, Fjeldså & Krabbe 1990, Züchner 1999, Ridgely & Greenfield 2001, Dickinson 2003). During a taxonomic study of the genus *Coeligena* (Sánchez Osés 2003), specimens from the western slopes of the northern Ecuadorian Andes were found to show striking differences from those taken from eastern Andean slopes, suggesting the presence of an undescribed subspecies.

Material and methods

To assess geographic variation, plumage coloration and morphometric data (bill-, wing- and tail-length) were analysed (see Appendix for coordinates of collecting localities). Colour description was undertaken using Smithe (1975). Age was determined following Ortiz-Crespo (1972) and, in males, by the presence of pale cinnamon fringes to the feathers. All measurements were taken, from the left side of adult specimens, with digital callipers accurate to the nearest 0.1 mm, as follows: (1) bill-length, from the proximal end of the operculum to the tip of the maxilla; (2) length of the outermost rectrix or tail-length (r5), taken on the left outermost rectrix from the pygostyle insertion to its tip; this feather is the longest in the tail, thus, representing the total tail-length; and (3) wing-length, from the carpal joint to the tip of the outermost primary.

Results

Plumage coloration in *Coeligena lutetiae* from central Colombia to the eastern slope of the Andes in northern Peru shows little variation. Males have black heads; frontal

spot large, metallic bluish Spectrum Green (62); nape and upperparts blackish Dark Green (262); lower back less black; and uppertail-coverts Olive-Green (46). Chin and throat are metallic bluish Parrot Green (260); gular spot metallic violet Spectrum Blue (69); underparts like throat; belly more yellowish; undertail-coverts Parrot Green (160) occasionally bordered Warm Buff (118); tail-feathers entirely Olive-Green (46). Wing-coverts less blackish than upperparts; primaries and secondaries Raw Umber (223); tertials entirely Cinnamon (39), tipped Raw Umber (223). Females have the head and upperparts yellowish Dark Green (262), with a scaly head; uppertail-coverts bronzy Parrot Green (260). Chin and throat dark Clay Color (123B), bordered with tiny glittering Spectrum Green (62) discs; underparts yellowish Dark Green (262) with some slight brownish-white admixed; undertail-coverts yellowish Parrot Green (260) bordered Clay Color (123B); rectrices Greenish-Olive (49) slightly tipped white. Wings as in males, but with paler tertials. The population on the western slope of the Ecuadorian Andes (in Carchi and Pichincha) differs strikingly from that on the eastern slope (Fig. 2). Males differ in their greener upperparts, dark brownish-olive uppertail-coverts and conspicuously whitish tertials, becoming very pale Cinnamon (39) basally and tipped Raw Umber (223). Females also differ, having the upperparts less yellowish, no bronzy hue to the uppertail-coverts, the chin to upper breast pale Clay Color (123B), heavily mottled white and the belly heavily mottled Clay Color (123B); the wings are like those of males, but with more Cinnamon (39) on the tertials.

Differences between these two geographically isolated populations suggest that those birds from the west Ecuadorian Andes (Fig. 2) should be recognised as a new subspecies, principally identifiable based on the whitish tertials in adult males.

Coeligena lutetiae albimaculata, subsp. nov.

Holotype Adult male, Museum Alexander Koenig, Bonn [ZFMK], no. 8587. Collected in forest within the crater of Volcán Pichincha, Ecuador (00°10'S, 78°33'W) by an unknown collector, and originally deposited by Schröder in the Dernedde Collection in November 1912 (this collection was later acquired by ZFMK).

Paratypes Adult male, ZFMK 8588, same collection site and date as the holotype. Adult males, ZFMK 8576, 8578–79; adult females, ZFMK 8581–84, collected in Santo Domingo de los Colorados, Pichincha, Ecuador, at 1,200 m (00°15'S, 79°09'W), deposited in the Dernedde Collection by Schröder in November 1912. Adult female, ZFMK 8589, collected at Campamento Pailón, Carchi, Ecuador (00°29'S, 77°55'W), deposited in the Dernedde Collection by Schröder in November 1912.

Measurements Males of *C. l. albimaculata* have significantly longer bills and wings than those of the nominate. Females have significantly longer bills, wings and tails than the nominate (see Table 1).

Diagnosis

Measurements The diagnosability of the new subspecies was tested using a quantitative method proposed by Patten & Unitt (2002), based on the 'seventy-five per cent rule' for recognising subspecies (Amadon 1949). This method was applied for both sexes, to those body measurements that showed significant differences. In all cases, less than 75% of *albimaculata* showed differences to 90% of the nominate ($D_{al}<0$, $D_{la}<0$). The statistical analysis indicates that specimens of *albimaculata* have longer bills, wings and tails (in females), but the negative D values suggest that *albimaculata* is morphometrically indistinguishable from the nominate (Table 1).

Coloration Determination of colours was based on the standardised colour guide of Smithe (1975). In this respect, *C. l. albimaculata* is immediately distinguishable from the nominate. Male *albimaculata* (Fig. 1) has almost white tertials, obvious even at some distance, an effect enhanced by the contrasting dark brown primaries and secondaries, and dark green wing-coverts, which is not the case in those from east Ecuador (nominate). Minor variation in this diagnostic character exists: those feathers displaying a whitish wing spot are usually tipped dark brown, with small variation in the width of the brown. The feathers can also show some beige basally (e.g. the holotype). Female *albimaculata* (Figs. 3–4) is also readily diagnosable given differences in the underparts from the nominate, and to a lesser extent by the paler tertials. Female *albimaculata* has the chin and throat much less reddish cinnamon than in females of the nominate (see Chapman 1926). In the underparts, the overall coloration differs mainly in the more conspicuous pale cinnamon, white and black mottling. The coloration of breast and belly lacks or has strongly reduced glittering golden iridescence. All examined juveniles of the new subspecies were males; several had almost achieved adult plumage (except for the cinnamon-bordered undertail-covers). The coloration of the tertials in these specimens resemble *albimaculata* females (very pale cinnamon), being paler than in juveniles of the nominate.

Description of the holotype

Mandible and upper maxilla, head, and nape black; head with one large metallic Spectrum Green (62) frontal spot, bluish at certain angles; upperparts glittering, blackish Dark Green (162A); uppertail-coverts and rectrices brownish Dark Green (162A); underparts glittering Dark Green (162) with strong bluish iridescence, duller on chin; throat with metallic Bluish Violet (172B) central gular spot fringed blue; belly mottled black; undertail-coverts yellowish Dark Green (162) lightly bordered pale yellowish Cinnamon (39); lesser wing-coverts as back but much less blackish; greater wing-coverts darker and less glittering; tertials conspicuously white, with bases very pale Cinnamon (39), tipped Raw Umber (223), contrasting with wholly Raw Umber (223) remaining remiges; fringe to first remix pale yellowish Cinnamon (39). Measurements: bill-length 39.4 mm, wing-length 78.6 mm, tail-length 46 mm.

TABLE 1

Morphometric data for *Coeligena l. albimaculata* and *C. l. lutetiae*. Means (X) with standard deviation (σ), value ranges, sample sizes, and values of D_{ij} ($D_{ij}=X_i-\sigma_i t_{0.25,df_i}-X_j-\sigma_j t_{0.01,df_j}$, Patten & Unitt 2002) are given. The asterisks indicate populations showing significant differences.

Measurement	Sex	*C. l. albimaculata*	*C. l. lutetiae*	Mann-Whitney	D_{ij}
		$X_a \pm \sigma_a$	$X_l \pm \sigma_l$	U-test	
bill-length (mm)	males	39.4±0.92 (37.7–42.1)	38.4±1.82 (32.4–41.8)	U=398.50	$D_{al}<0$
		n=27	*n*=44	*P*<0.05*	$D_{la}<0$
	females	42.0±1.63 (38.1–44.3)	40.8±1.6 (37.2–43.8)	U=205.00	$D_{al}<0$
		n=23	*n*=30	*P*<0.05*	$D_{la}<0$
wing-length (mm)	males	77.2±2.78 (63.9–82.3)	75.6±2.42 (69.6–81.3)	U=459.00	$D_{al}<0$
		n=35	*n*=50	*P*<0.01*	$D_{la}<0$
	females	73.4±2.3 (68.6–79.4)	70.9±2.58 (63.8–78.2)	U=138.00	$D_{al}<0$
		n=24	*n*=23	*P*<0.01*	$D_{la}<0$
tail-length (r5) (mm)	males	45.0±5,21 (34.0–51.0)	45.4±3.62 (34.2–49.4)	U=715.50	$D_{al}<0$
		n=33	*n*=51	*P*>0.05	$D_{la}<0$
	females	43.6±2.26 (39.1–48.4)	42.4±1.70 (38.7–46.2)	U=238.00	$D_{al}<0$
		n=24	*n*=29	*P*<0.05*	$D_{la}<0$

Figure 1. Dorsal view of males showing the diagnostic almost white tertials. *C. lutetiae lutetiae*: upper two specimens from Papallacta, Ecuador (ZFMK 8586, ZFMK 8592). *C. l. albimaculata*: paratype ZFMK 8588 and holotype ZFMK 8587 (see text and Appendix for localities).

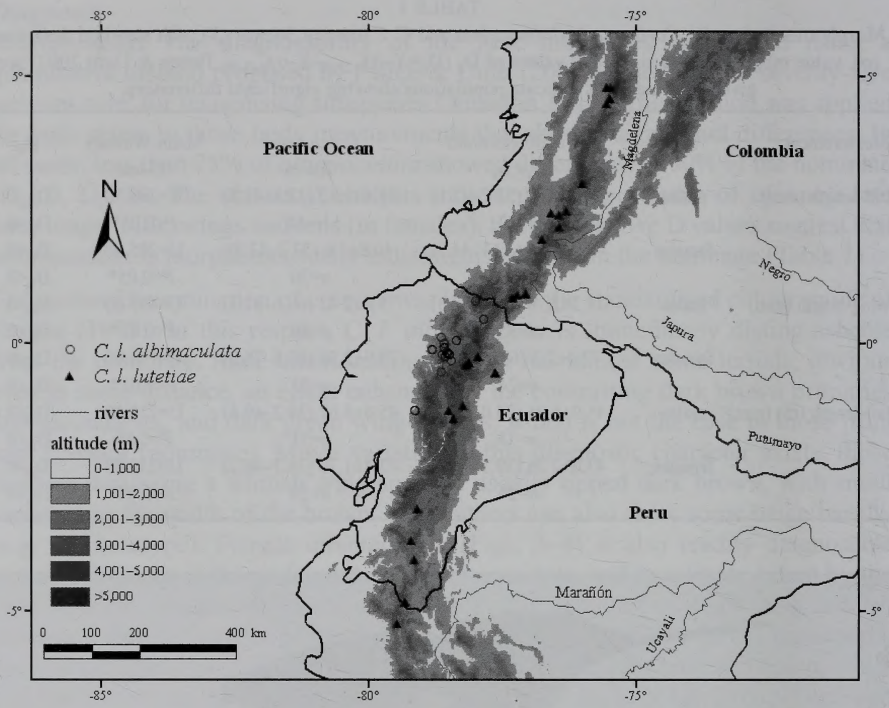

Figure 2. Ranges of *C. lutetiae albimaculata* and *C. l. lutetiae* based on examined specimens (see Appendix for localities).

Distribution and habitat

Specimens of *C. l. albimaculata* have been collected between Maldonado and Tulcán (*c*.00º47'N, 78º01'W), near the border with Colombia, south to around Quito and Volcán Pichincha, on the west slope of the north Ecuadorian Andes, at altitudes of 2,700–4,800 m (Fig. 2). Specimens of the nominate were not found on the west slope of the Andes in southern Colombia and northern Ecuador. The new subspecies occurs in dense cloud forest and elfin woodlands mixed with bamboo (Fjeldså & Krabbe 1990), but also in páramo (K.-L. Schuchmann pers. comm., *contra* Ridgely & Greenfield 2001).

Etymology

The proposed name highlights the whitish wing spot in males of *C. l. albimaculata*, this being the most obvious feature of the new subspecies.

Discussion

Members of the genus *Coeligena* possess a cis-Andean distribution (*sensu* Haffer 1967). Populations of these species usually diverge at the subspecies level on opposite slopes of the Andes (see Schuchmann 1999). Differences occur in rather few features (e.g. the length or coloration of one or more body parts). Overall plumage coloration typically is similar between subspecies of any given species, and *Coeligena lutetiae* is no exception.

Chapman (1926) noted some variation in throat coloration between females of *C. lutetiae* from the eastern and western Andes of Ecuador, but found little evidence of differences between males. Nevertheless, he considered it necessary to recognise two forms within the species. Males supporting Chapman's suggestion were located in Museum Alexander Koenig, in Bonn, Germany.

Evidence suggesting *C. l. albimaculata* has only recently evolved was uncovered. Firstly differentiation is somewhat incomplete within *albimaculata*, with respect to bill-, tail- and wing-lengths. Additionally, the pale cinnamon-coloured tertials in juvenile males of both subspecies suggests that the cinnamon colour is an ancestral state.

Divergence between *C. lutetiae* populations probably occurred recently. The relatively swift final uplift of the Andes (and the sudden emergence of an immense geographic barrier above 6,000 m) separated that population on the west slope of the north Ecuadorian Andes from the species' main range. This upheavel was accentuated during late Quaternary climatic changes and could have led to the differentiation of the two subspecies on different slopes of the Ecuadorian Andes, as further contact between the populations would have been impossible, thus stabilising the presence of the defining characters amongst individuals of the new subspecies.

Differences in both sexes of the population on the west slope of the Ecuadorian Andes (*C. l. albimaculata*) can be summarised thus: an increase in bill-, wing- and tail-length, and the loss of cinnamon pigmentation. In male *albimaculata*, the tertials change from pale cinnamon (nominate) to almost white. In female *albimaculata*, the cinnamon coloration on the chin and throat is much paler than the nominate, the golden and green colorations (characteristic of the nominate) decrease, whilst there is an concordant increase in cinnamon and white mottling.

Acknowledgements

I thank the curators and scientific staff of the following museums for their assistance and collaboration during my studies: the Academy of Natural Sciences, Philadelphia (ANSP); Field Museum of Natural History, Chicago (FMNH); American Museum of Natural History, New York (AMNH); National Museum of Natural History, Smithsonian Institution, Washington DC (NMNH); Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn (ZFMK); Zoologisk Museum, Copenhagen (ZMK); Musée d'Histoire Naturelle, Paris (MHNP); Museum of Comparative Zoology, Harvard University, Cambridge (MCZ), and the Natural History Museum, Tring (NHM). Particularly, I thank K.-L. Schuchmann for his support during the execution of this work, and Angela Schmitz-Ornés, Armando Valdés and Darius Stiels for comments on the manuscript. The manuscript was considerably improved by

Figure 3. Ventral view of females showing the diagnostic paler chin and throat, and more conspicuous pale cinnamon, white and black mottling on the belly. *C. lutetiae lutetiae*: upper specimens from Santo Domingo, Ecuador (ZFMK 8584) and Quito, Ecuador (ZFMK 81.365). *C. l. albimaculata*: paratypes ZFMK 8589 and ZFMK 8581 (see text and Appendix for localities).

Figure 4. Dorsal view of females showing the less pronounced whitish tertials in *C. lutetiae albimaculata* specimens (see Fig. 3).

comments from the referees, Van Remsen and André Weller. I also thank Lisa Tylee and Barbara Larumbe for English correction. Last but not least, I thank my colleagues in the Ornithology Section at Museum Alexander Koenig in Bonn.

References:

Amadon, D. 1949. The seventy-five per cent rule for subspecies. *Condor* 51: 250–258.

Bonaparte, C. L. 1850. *Conspectus Generum Avium*. Lugduni-Batavorum.

Chapman, F. M. 1926. The distribution of the bird-life in Ecuador. *Bull Amer. Mus. Nat. Hist*. 36.

DeLattre, A. & Bourcier, J. 1846. Description de quinze espèces nouvelles de Trochilidées [...] provenant de l'intérieur u Pérou, des républiques de l'Equateur, de la Nouvelle-Grenade et de l'isthme de Panama. *Rev. Zool*. 305–308.

Dickinson, E. C. (ed.) 2003. *The Howard & Moore complete checklist of the birds of the world*. Third edn. Christopher Helm, London.

Elliot, D. G. 1874. Notes on Trochilidae. The genus *Helianthea*. *Ibis* 16: 330–353.

Elliot, D. G. 1878. *A classification and synopsis of the Trochilidae*. Smithsonian Institution, Washington DC.

Fjeldså, J. & Krabbe, N. 1990. *Birds of the high Andes*. Zool. Mus., Univ. of Copenhagen & Apollo Books, Svendborg.

Goodfellow, W. 1900. [*Helianthea hamiltoni*, sp. n.]. *Bull. Brit. Orn.Cl*. 10: 48.

Gould, J. 1861. *An introduction to the Trochilidae, or family of humming-birds*. London.

Haffer, J. 1967. Speciation in Colombian forest birds west of the Andes. *Amer. Mus. Novit*. 2294: 1–57.

Hartert, E. 1900. *Das Tierreich. Aves, Trochilidae*. Robert de Gruyter, Berlin.

Hilty, S. L. & Brown, W. L. 1986. *A guide to the birds of Colombia*. Princeton Univ. Press.

Ortiz-Crespo, F. 1972. A new method to separate immature and adult hummingbirds. *Auk* 89: 851–857.

Patten, M. A. & Unitt, P. 2002. Diagnosability vs. mean differences of Sage Sparrow subspecies. *Auk* 119: 26–35.

Paynter, R. A. 1993. *Ornithological gazetteer of Ecuador*. Mus. Comp. Zool., Harvard Univ. Press, Cambridge, MA.

Paynter, R. A. 1997. *Ornithological gazetteer of Colombia*. Mus. Comp. Zool., Harvard Univ. Press, Cambridge, MA.

Peters, J. L. 1945. *Check-list of the birds of the world*, vol. 5. Harvard Univ. Press, Cambridge, MA.

Reichenbach, L. 1853. Auszählung der Colibris oder Trochilideen in ihrer wahren natürlichen Verwandschaft. *J. Orn.* 1 Extra-Heft 1: 1–24.

Ridgely, R. S. & Greenfield, P. J. 2001. *The birds of Ecuador*, vol. 2. Cornell Univ. Press, Ithaca, NY.

Sánchez Osés, C. 2003. Geographic distribution of the genera *Coeligena* Lesson, 1832; *Pterophanes* Gould, 1849; *Ensifera* Lesson, 1842; and *Patagona* G. R. Gray, 1840. Ph.D. Rheinische Friedrich-Wilhelms-Universität, Bonn.

Schuchmann, K.-L. 1999. Family Trochilidae (hummingbirds). Pp. 468–535 *in* del Hoyo, J., Elliott, A. & Sargatal, J. (eds.) *Handbook of the birds of the world*, vol. 5. Lynx Edicions, Barcelona.

Simon, E. 1921. *Histoire naturelle des Trochilidæ (synopsis et catalogue)*. Paris.

Smithe, E. 1975. *Naturalist's color guide*. Amer. Mus. Nat. Hist., New York.

Züchner, T. 1999. Buff-winged Starfrontlet *Coeligena lutetiae*. P. 629 *in* del Hoyo, J., Elliott, A. & Sargatal, J. (eds.) *Handbook of the birds of the world*, vol. 5. Lynx Edicions, Barcelona.

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APPENDIX

Coordinates of the following localities of study specimens were obtained directly from the labels, from Paynter (1993, 1997) or the Alexandria Digital Library.

C. l. albimaculata (59 specimens): Ecuador: 20 km north of Pichincha, Cordillera Alaspungo (00°00', 78°36'W); Aluguincho (00°03'N, 78°23'W); Bosques del Cráter, Pichincha (00°10'S, 78°33'W); *c.*3 km south-east of Impuerán, west slope Cerro Mongus, Carchi (00°27'N, 77°52'W); Campamento Pailón, Carchi (00°29'N, 77°55'W); Gualea, Pichincha (00°07'S, 78°50'W); Lloa, Pichincha, Oeste (00°15'S, 78°35'W); Nanegal (00°70'N, 78°40'W); Pichincha (00°10'S, 78°33'W); 'Quito' (00°13'S, 78°30'W); Río Pachijal, Pichincha (00°12'N, 78°58'W); San Pedro de Taboada (00°19'S, 78°28'W); Santo Domingo de Los Colorados (00°15'S, 79°09'W); Verdecocha, Pichincha (00°05'S, 78°37'W); west of Corazón (00°32'S, 78°39'W); west slope, south of road between Maldonado and Tulcán, south and above (00°47'N, 78°01'W).

C. l. lutetiae (83 specimens): Colombia: Almaguer, Cauca (01°56'N, 76°46'W); La Victoria, Nariño (00°55'N, 77°13'W); Laguneta, Caldas (04°35'N, 75°30'W); Llorente, Nariño (00°51'N, 77°19'W); Malrasá, Cauca (02°29'N, 76°18'W); Nevado del Huila, Páez, Cauca (03°00'N, 76°00'W); Paletara, Cauca (02°10'N, 76°26'W); Páramo Guamués, Nariño (00°55'N, 77°04'W); Popayán, Cauca (02°27'N, 76°36'W); Puracé, km 11, Cauca (02°24'N, 76°27'W); Santa Isabel, Quindio (04°47'N, 75°28'W); Termales, Tolima (04°29'N, 75°33'W). Ecuador: Alto Pastaza, Env. de Baños (01°24'S, 78°25'W); Ambato, Tungurahua (01°15'S, 78°30'W); between Loja and Zamora (04°02'S, 79°09'W); *c.*7 km south-east of Saraguro, Cordillera Cordoncillo, Loja (03°41'S, 79°13'W); east slope Cordillera Lagunillas, *c.*25 km along road south-southeast of Jimbura, Zamora-Chinchipe (04°50'S, 79°20'W); Lake Papallacta, Napo (00°24'S, 78°11'W); Mt. Tungurahua, Tungurahua (01°27'S, 78°26'W); Oyacachi, Napo (00°15'S, 77°57'W); Papallacta (00°22'S, 78°08'W); Portete, Loja (03°06'S, 79°06'W); Pueblo Viejo, Oyacachi abajo (00°15'S, 77°57'W); Río Napo (01°10'S, 78°15'W); Sumaco Arriba, Napo (00°33'S, 77°38'W). Peru: Huancabamba, Piura (05°14'S, 79°28'W).

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A new subspecies of Band-winged Nightjar *Caprimulgus longirostris* from central Chile

by Nigel Cleere

Received 8 May 2005; final revision received 29 November 2005

Band-winged Nightjar *Caprimulgus longirostris* is one of the more widespread South American Caprimulgids and occurs in open habitats and at forest edges throughout the southern cone of the continent, as well as in the tropical Andes and tepuis (Cleere 1998, 1999, Holyoak 2001). Seven subspecies are presently recognised, which easily separate into four distinct populations. The northern population comprises two very dark, spotted races: *C. l. ruficervix* (Sclater 1866) and *C. l. roraimae* (Chapman 1929). That in the south includes three greyish, streaked subspecies: *C. l. longirostris* Bonaparte, 1825, *C. l. bifasciatus* Gould, 1837, and *C. l. patagonicus* Olrog, 1962. The two central populations are *C. l. decussatus* Tschudi, 1844, and *C. l. atripunctatus* (Chapman 1923), with the latter appearing to represent an intermediate taxon between the northern and southern

populations. Indeed, Hellmayr (1932) observed that *C. l. atripunctatus* formed the transition from *C. l. bifasciatus* to *C. l. ruficervix*.

Three subspecies are confirmed in Chile. *C. l. decussatus* is the rarest being found only in the north-west lowlands. It occurs in the tropical desert life zone, in the provinces of Arica and Iquique, in Region 1, as far south as Quillagua (M. Marín *in litt.* 2005). *C. l. atripunctatus* also occurs in the north, but only at high elevations in the Andes, from Parinacota province south to Antofagasta province, in Regions 1 and 2, but might also occur in Chañaral and Copiapo provinces, in Region 3 (M. Marín *in litt.* 2005). *C. l. bifasciatus* is the most widespread mainland form, being found from sea level to *c.*2,500 m throughout the Mediterranean life zone, from Antofagasta to Concepción provinces, in Regions 2–8 (Marín *et al.* 1989, M. Marín *in litt.* 2005), but may also occur as far south as the Islas Guaitecas (Hellmayr 1932, Johnson 1967, Fjeldså & Krabbe 1990). A fourth taxon, *C. l. patagonicus*, possibly occurs in the Patagonian life zone around Torres del Paine National Park, based on a number sight records reported in the Chilean literature (M. Marín *in litt.* 2005), but a male collected at Estancia Río Payne [Paine], on 16 March 1941, was provisionally identified as *C. l. bifasciatus* (Olrog 1948).

In addition to the taxa mentioned above, there are four synonyms of *C. l. bifasciatus* from Chile relating to birds collected on the mainland. *Caprimulgus conterminus* Peale, 1848, was described from Valparaiso, *C. andinus* Philippi & Landbeck, 1860, from a juvenile taken in the Cordillera de Santiago, *C. obscurus* Albert, 1898, from Concepción, and *C. bifasciatus gularis* Philippi & Landbeck, 1902, from Chile (locality unknown).

Although Hellmayr (1932) was unable to determine any racial variation within *C. l. bifasciatus*, an unnamed subspecies was recently reported to occur on Isla Mocha off the central Chilean coast (Fjeldså & Krabbe 1990). Whilst studying

TABLE 1

Mensural data for *C. l. bifasciatus* from western mainland Chile, and holotype and paratypes of *C. l. mochaensis*. Measurements in mm; s.d. = standard deviation.

	Males	Females
C. l. bifasciatus wing-length		
sample size	9	4
mean (range)	162.8 (157–167)	160.2 (158–164)
C. l. mochaensis wing-length		
sample size	2	1
mean (range)	174.5 (171–178)	171
C. l. bifasciatus tail-length		
sample size	9	4
mean (range)	120.4 (100–127)	111.2 (92–122)
C. l. mochaensis tail-length		
sample size	2	1
mean (range)	133 (130–136)	128

Figures. 1–2. Left to right: male *C. l. mochaensis* (AMNH 387367 paratype); male *C. l. mochaensis* (BMNH 1935.10.21.296 holotype); male *C. l. bifasciatus* (BMNH 1855.12.19.241 holotype); female *C. l. bifasciatus* (BMNH 1905.4.12.19); female *C. l. bifasciatus* (BMNH 1908.11.19.19) (© Harry Taylor, The Natural History Museum, Tring)

specimens of *C. longirostris* deposited in natural history museum collections in Europe and North America, an immature female from Isla Ascención, in the Guaiteca archipelago, and two adult males from Isla Mocha were indeed found to differ from all existing subspecies. They clearly represent an undescribed taxon, which I propose to name:

Caprimulgus longirostris mochaensis, subsp. nov.

Holotype Adult male, Natural History Museum, Tring (BMNH 1935.10.21.296), collected 11 December 1932, on Isla Mocha, Chile, by F. C. Platts.

Paratypes Adult male, American Museum of Natural History, New York (AMNH 387367), collected 10 December 1932, on Isla Mocha, Chile, by D. S. Bullock (field no. 1541). Immature female, Field Museum of Natural History, Chicago (FMNH 62370), collected 30 January 1923, at Melinca, Isla Ascención, Guaiteca archipelago, by C. C. Sanborn (field no. 118).

Measurements (mm) and bare-part coloration **Holotype** Wing 171, tail 130, bill 20; iris dark coffee, bill black, legs dark brown. **Male paratype** Wing 178, tail 136, bill 19; bare parts no data. **Female paratype** Wing 171, tail 128, bill 20.7; bare parts no data.

Diagnosis Larger and distinctly darker than *C. l. bifasciatus*, with a darker, more tawny-buff collar on the hindneck, broader, heavier crown streaking, and less buff on the belly and flanks.

Description of the holotype Forehead, crown and nape greyish white, speckled and barred brown and broadly streaked blackish brown, with some streaks having buffish spots at their edges. Narrow tawny-buff collar on hindneck. Back, rump and uppertail-coverts dark brown barred greyish brown. Lesser wing-coverts dark brown, rest of wing-coverts dark brown boldly spotted pale buff. Scapulars blackish brown, fringed and spotted buff. Primaries brown. Outer four primaries (p10–p7) with broad white band (*c.*13 mm) above notch, across both webs, the white washed pale buff on the outer webs and fringed pale buff on the inner webs. Innermost six primaries and all secondaries brown, spotted and barred tawny-buff. Tertials brown speckled greyish white and tipped blackish brown, with tawny fringes. Tail brown, broadly barred with greyish-brown speckling. Outer three rectrices (r5–r3) broadly tipped (42 mm) with white spots fringed and tipped with brown and buff speckling, and with a white band (*c.*10 mm) across mid feather. Chin and upper throat dark brown, lower throat white with buff edges. Breast dark brown, narrowly barred greyish white and sparsely spotted buff. Belly and flanks buff, barred brown, with

upper belly tinged greyish white. Undertail-coverts buff and partially barred with brown.

Diagnosis of the male paratype Similar to the holotype, but with a broader (*c.*15 mm) and whiter band across the four outermost primaries, and larger (50 mm) white spots on tips of outer rectrices.

Diagnosis of the female paratype Similar in coloration and size to the holotype and male paratype.

Distribution and status To date, known with certainty only from Islas Mocha and Ascención, off the central Chilean coast. Isla Mocha is 50 km^2, contains a small mountain chain that rises to 375 m and has undergone *c.*50% deforestation (Housse 1924, Chapman 1934, Bullock 1936, Paynter 1988, M. Marín *in litt.* 2005). Melinca is at sea level on Isla Ascención in the Guaiteca archipelago (Paynter 1988). A sighting near Dalcahue, north-east of Castro, Isla Chiloe, on 14 February 1981, and a nest with two eggs found, on 11 January 1980, at La Picada, Volcán Osorno, prov. Osorno, might also relate to the new subspecies (M. Marín *in litt.* 2005). The current status of *C. l. mochaensis* on Islas Mocha and Ascención is unclear, but on Isla Mocha, at least, it may only ever have been an uncommon migrant. *C. longirostris* is a partial austral migrant (Marin 2004) and in central Chile, the vast majority of birds have disappeared by April–May, although in some, perhaps milder, winters a few remain later (M. Marín *in litt.* 2005).

The holotype and male paratype were probably part of a collection of birds made on Isla Mocha, by D. S. Bullock, between 11 November and 14 December 1932, some of which were presented to the American Museum of Natural History by Dr L. C. Sanford. In the first report on this collection, Chapman (1934) only included birds peculiar to the island and *C. longirostris* was not mentioned. In a second report, Bullock (1936) related that he was given four males by the lighthouse keeper, three taken on one night and the fourth the following night, but only one of these appears to have been sent to New York (see above). A second specimen is presumably that now in The Natural History Museum, Tring (see above), which was purchased from F. C. Platts in 1935. A third specimen, an adult male, collected November 1932, on Isla Mocha, Chile, by F. C. Platts, is in the Museo Nacional de Historia Natural, Santiago, Chile (MNHN 2231). I have not examined this specimen, but photographs suggest plumage similarities with *C. l. bifasciatus*. The whereabouts of the fourth specimen is unknown. The identity of F. C. Platts is unclear, but in a letter to F. M. Chapman, dated 20 December 1932, D. S. Bullock wrote 'I went with two collectors from the Museo Nacional and together we got quite a good collection'. Platts may well have been one of those other collectors, given the coincidence in dates. In the archives of The Natural History Museum, in London, there is a small correspondence file relating to Platts (BMNH DF230/56). The letters, dated 1933–48, relate mostly to the sale of his collection of Chilean

specimens of birds, mammals and insects. Little can be gleaned from this limited material, other than that he was a taxidermist who, at one time, had been in Chile mounting specimens for an unnamed museum.

A more recent collection from Isla Mocha comprises specimens, taken by Francisco Behn in January 1959, deposited in the Forschungsinstitut Senckenberg (SMF), Frankfurt am Main, Germany, but it contains no examples of *C. longirostris* (pers. obs., G. Mayr pers. comm.). A recent ornithological survey of the island in February 2005 produced no records of *C. longirostris* and farming in the lower, more open areas of the island is reportedly more extensive than in previous decades, whilst local people apparently do not know the species (J. Torres *in litt* 2005.).

It has been suggested that the new taxon may also occur in mainland Chile, in the Valdiviana life zone, south of Concepción, as individuals of *C. longirostris* in forested areas there are larger and darker than those from the Mediterranean life zone to the north (M. Marín *in litt.* 2005). The Valdiviana life zone (0–1,500 m) stretches from Concepción (37°S) to the Taitao Peninsula (46°S), and is characterised by a southward increase in rainfall and forestation of mainly *Nothofagus* (Marin 2004). The existence of *C. l. mochaensis* in the Valdiviana life zone appears to be supported by an uncatalogued specimen in the Museum für Naturkunde, Berlin. It is an adult male, collected at Valdivia in 1862 by Korth and Burlin, and is quite dark, with a wing-length of 172 mm and tail-length of 139 mm. Unfortunately, I have been unable to compare it directly with the type series. I have also examined two females from the Valdiviana life zone (MCZ 97184 and AMNH 113470; for a selective list of museum material examined and institution acronyms see the Appendix) but, again, I have yet to evaluate them alongside *C. l. mochaensis*.

Etymology The new subspecies is named after Isla Mocha, Chile, where the holotype and male paratype were collected.

Postscript

To determine that the population of *C. longirostris* from central Chile was unnamed, it was necessary to examine specimens relating to the four synonyms of *C. l. bifasciatus*. Of these, only *C. obscurus*, described from Concepción, might have been attributable, but was safely eliminated on size as measurements of the holotype, a female, were given as wing 156 mm and tail 122 mm (Philippi & Landbeck 1902).

Acknowledgements

I express my warmest thanks to all of the museum curators and staff who permitted access to specimens in their care, especially to Robert Prŷs-Jones, Mark Adams, Michael Walters, Jo Cooper and Katrina Cook (BMNH); Andrew Kitchener and Bob McGowan (RSM); Joel Cracraft and Paul Sweet (AMNH); Douglas Causey and Jeremiah Trimble (MCZ); Sylke Frahnert and Jurgen Fiebig (ZMB); Gerald Mayr (SMF); and René Dekker (RMNH). (For a list of museum acronyms see the Appendix.) I also thank Juan Torres (MNHN) for supplying data and photographs of the specimen held in the Museo Nacional de Historia Natural, Santiago, Chile. I am grateful to Polly Tucker (BMNH) for information from the

archives of The Natural History Museum, in London, and to Jon Fjeldså and Manuel Marín, whose comments greatly improved the manuscript.

References:

Albert, F. 1898. Contribuciones al estudio de aves chilenas. *Anal. Univ. Chile* 101: 497–520.

Bonaparte, C. L. 1825. Description of ten species of South American birds. *J. Acad. Nat. Sci. Phil.* 4: 370–387.

Bullock, D. S. 1936. Las aves de la Isla de la Mocha. *Rev. Chil. Hist. Nat.* 39: 232–253.

Chapman, F. M. 1923. Descriptions of proposed new birds from Panama, Venezuela, Ecuador, Peru and Bolivia. *Amer. Mus. Novit.* 67: 1–12.

Chapman, F. M. 1929. Descriptions of new birds from Mt. Roraima. *Amer. Mus. Novit.* 341: 1–7.

Chapman, F. M. 1934. Descriptions of new birds from Mocha Island, Chile, and the Falkland Islands, with comments on their bird life and that of the Juan Fernandez Islands and Chiloe Island, Chile. *Amer. Mus. Novit.* 762: 1–8.

Cleere, N. 1998. *Nightjars. A guide to nightjars and related nightbirds*. Pica Press, Robertsbridge.

Cleere, N. 1999. Family Caprimulgidae (nightjars). Pp. 302–386 *in* del Hoyo, J., Elliott, A. & Sargatal, J. (eds.) *Handbook of the birds of the world*, vol. 5. Lynx Edicions, Barcelona.

Fjeldså, J. & Krabbe, N. 1990. *Birds of the high Andes*. Zool. Mus., Univ. of Copenhagen & Apollo Books, Svendborg.

Gould, J. 1837. [Mr Gould exhibited, in continuation, the *Fissirostral birds* of Mr Darwin's collection, recently presented to the society, and characterized from among them the following new species.] *Proc. Zool. Soc. Lond.* 1837: 22.

Hellmayr, C. E. 1932. The birds of Chile. *Field Mus. Nat. Hist., Zool. Ser.* 19: 1–472.

Holyoak, D. T. 2001. *Nightjars and their allies. The Caprimulgiformes*. Oxford Univ. Press.

Housse, R. P. R. 1924. Apuntes sobre las aves de la Isla la Mocha. *Rev. Chil. Hist. Nat.* 28: 47–54.

Johnson, A. W. 1967. *The birds of Chile and adjacent regions of Argentina, Bolivia and Peru*, vol. 2. Platt Establecimentos, Buenos Aires.

Marin, M. 2004. *Annotated checklist of the birds of Chile*. Lynx Edicions, Barcelona.

Marín, M., Kiff, L. F. & Peña, L. 1989. Notes on Chilean birds, with descriptions of two new subspecies. *Bull. Brit. Orn. Cl.* 109: 66–82.

Olrog, C. C. 1948. Observaciones sobre la avifauna de Tierra del Fuego y Chile. *Acta Zool. Lilloana* 5: 437–531.

Olrog, C. C. 1962. Notas ornitológicas. *Acta Zool. Lilloana* 28: 111–120.

Paynter, R. A. 1988. *Ornithological gazetteer of Chile*. Mus. Comp. Zool., Harvard Univ. Press, Cambridge, MA.

Peale, T. R. 1848. Mammalia and ornithology. *United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842 under the command of Charles Wilkes, U.S.N.*, vol. 8. Philadelphia.

Philippi, R. A. & Landbeck, L. 1860. Beschreibung zweir neun Chilenischen Vögel aus den Geschlechtern *Procellaria* und *Caprimulgus*. *Arch. f. Naturg* 26: 280–284.

Philippi, R. A. & Landbeck, L. 1902. *In* Philippi, R. A. (ed.) Los azores chilenos. *Anal. Mus. Nac. Chile* 15A, *Zool.* 1–114.

Sclater, P. L. 1866. Notes upon the American Caprimulgidae. *Proc. Zool. Soc. Lond.* 1866: 123–145.

Tschudi, J. J. 1844. Avium conspectus quae in Republica Peruana reperiuntur et pleraeque observatae vel collectae sunt in itinere. *Arch. f. Naturg.* 10: 262–317.

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APPENDIX

During this study of *Caprimulgus longirostris*, all subspecies were evaluated and, in total, over 300 specimens were examined. In addition to the types of *C. l. mochaensis* (see above), of particular importance were skins of *C. l. bifasciatus* from mainland Chile, these being: AMNH 748519, adult

female, May 1940, Yumbel, prov. Bío-Bío; AMNH 147277, adult female, 8 October 1917, Tofo, prov. Elqui; AMNH 113470, adult female, 30 January 1911, Temuco, prov. Cautín; AMNH 175830, adult male, 22 November 1923, Valle de Los Piuquenes, prov. Los Andes; BMNH 1855.12.19.241 (holotype), adult male, prov. Valparaiso; BMNH 1890.2.18.150, adult male, June 1864, prov. Santiago; BMNH 1890.2.18.151, adult male, December 1865, Santiago; BMNH 1890.2.18.152, adult female, Santiago; BMNH 1890.2.18.154, adult female, 1875, Cordillera de Santiago; BMNH 1935.10.21.297, adult female, 12 January 193, Batuco, prov. Chacabuco; BMNH 1880.8.3.37, adult female, June 1879, prov. Elqui; BMNH 1905.4.12.19, adult female, 28 September 1904, Maquehue, Temuco, prov. Cautin; BMNH 1908.11.19.19, adult female, 18 June 1906, prov. Cautín; MCZ 287499, adult female, 7 September 1943, Concón, prov. Valparaiso; MCZ 287500, adult male, 22 August 1943, Reñaca, prov. Valparaiso; MCZ 287498, adult male, 15 November 1940, Los Valdés, prov. Cordillera; MCZ 287496, adult female, August 1933, San Bernardo, prov. Maipo; MCZ 287497, adult male, 26 July 1936, San Bernardo, Santiago; MCZ 18090, juvenile, Santiago; MCZ 97184, adult female, 24 August 1924, prov. Malleco; MCZ 96225, adult female, May 1923, San Francisco de Mostazal, prov. Cachapoal; MCZ 97183, immature male, 16 June 1924, Las Palmas, prov. Valparaíso; RMNH Cat. 1, adult male, November 1862, Santiago; RMNH Cat. 1, adult male, November 1862, Santiago; RMNH Cat. 2, adult male, November 1862, Santiago; RSM 22279, adult male, 1 October 1929, Casa Blanca, prov. Valparaiso; SMF 76811, adult female, 6 November 1964, Barquito, prov. Chañaral, SMF 76812, adult male, 6 November 1964, Barquito, prov. Atacama; SMF 76810, adult female, 30 July 1939, El Caracol, prov. Concepción; ZMB uncatalogued, adult male, 1862, prov. Valdivia

Museum acronyms: AMNH = American Museum of Natural History, New York; BMNH = The Natural History Museum, Tring; MCZ = Museum of Comparative Zoology, Harvard; RMNH = Nationaal Natuurhistorisch Museum, Leiden; RSM = Royal Scottish Museum, Edinburgh; SMF = Forschungsinstitut Senckenberg, Frankfurt am Main; ZMB = Museum für Naturkunde, Berlin.

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Further annotations and an addition to the avifauna of the Democratic Republic of Congo

by Paul Herroelen

Received 27 November 2003; final revision received 1 November 2005

Since the publication of a previous paper with additions and annotations to the avifauna of the Democratic Republic of Congo (or Congo-Kinshasa, ex-Zaïre; hereafter DR Congo) (Demey *et al.* 2000), new data, principally concerning breeding and distribution, have come to light. These are based on field observations by myself (in 1950–1960) and correspondents, and examination of skins in the Royal Museum for Central Africa (RMCA), Tervuren, and the Institut Royal des Sciences Naturelles de Belgique (IRSNB), Brussels, Belgium. The present paper also includes some records already published but apparently overlooked by major reference works. Some errors in the literature are corrected. Names of major towns and provinces used here are those in usage today and are identical to those used when the country was still Zaïre, except for the regions Bas-Zaïre, Haut-Zaïre and Shaba, which have recovered their pre-independence names and have become the

provinces Bas-Congo, Orientale and Katanga respectively. However, as in Demey *et al.* (2000), the names of smaller administrative divisions dating from colonial times (when provinces were divided into districts, subdivided into territories; see maps in Schouteden 1962, 1963a,b, 1965, 1968, 1971) have been retained for records from that period, in order to facilitate comparison with already-published data. Note that one of the four districts of Equateur province is also named Equateur. The abbreviation NP = National Park. Sequence and nomenclature mainly follow *The birds of Africa* (Brown *et al.* 1982, Urban *et al.* 1986, 1997, Fry *et al.* 1988, 2000, Keith *et al.* 1992).

Species accounts

LITTLE BITTERN *Ixobrychus minutus*
Two ringing recoveries in Zink (1961) were not mentioned by Brown *et al.* (1982): the first, ringed as a pullus in Czechoslovakia in 1944, was found at Liboli, Equateur, on 10 November 1947; the second, ringed as a pullus in Switzerland in 1952, was killed around 30 April 1953 in Kabinda territory, East Kasaï.

FULVOUS WHISTLING DUCK *Dendrocygna bicolor*
On 28 April 1959 I. Mesmaekers (*in litt.* 1959) recorded a flock of *c.*40 at Mateba Island, Bas-Congo, and secured two specimens. The species was previously known only from northern Oriental province, North Kivu, South Kivu and Katanga, where it breeds (Verheyen 1953, Ruwet 1963, Schouteden 1963a, 1968).

YELLOW-BILLED DUCK *Anas undulata*
Breeding data: a young bird with primaries still growing collected in November 1942 at the Ishwa Plain, north of Lake Albert, Oriental province (Vrydagh 1949); ducklings of different ages in March and April, in Upemba NP, Katanga (Verheyen 1953). Brown *et al.* (1982) give no breeding data for DR Congo.

BLACK-SHOULDERED KITE *Elanus caeruleus*
In Equateur province, common in the savanna of Ubangi district north of 03°30'N (Maes 1988, Dejaifve 1990, 1994a) but not in the southern part, nor in Equateur and Tshuapa districts (in the south-east to *c.*02°S). The distribution map in Brown *et al.* (1982) for the central Congo basin is based on three old records (two skins from Umangi, March–April 1899, and one undated sighting at Mbandaka in 1921, by Schouteden 1924). Since then the species has not been collected nor reported to the RMCA from southern Equateur, although it is one of the commonest raptors in the collection and would very probably have been collected if at all common in this region.

MARTIAL EAGLE *Polemaetus bellicosus*
The record of a vagrant on the distribution map in Brown *et al.* (1982) and in Schouteden (1961) should be corrected: the specimen (RMCA 64329, Bokote,

Equateur, February 1952) has been reidentified by M. Louette as a young Crowned Eagle *Stephanoaetus coronatus*.

CONGO SERPENT EAGLE *Dryotriorchis spectabilis*
According to Brown *et al.* (1982) this resident is believed not to breed in DR Congo, but Prigogine (1971) collected three juveniles (early July, mid August, mid December) in South Kivu and indicates January as the egg-laying month. RMCA holds seven more juveniles, obtained 20 November–21 March, from northern Oriental province (November–December), Tshuapa district and Mbandaka, Equateur (February–March) and Bolobo, Bandundu (December); an eighth specimen was collected near Mbandaka in early June. These dates are in the main rainy season of the central forest districts.

AFRICAN HARRIER HAWK *Polyboroides typus*
In Tshuapa district, Equateur, I found nests in late July 1950, early March 1951, early November 1951 and early November 1952. A nest found in late July 1954 near Lisafa, Equateur district, was constructed in a *Piptadenia africana* tree. In Ubangi district, V. Maes (in *litt.* 1978) found a (successful) nest that was placed in a *Bombax flammeum* tree (no date given). Brown *et al.* (1982) do not mention reproduction dates for DR Congo.

CHESTNUT-FLANKED SPARROWHAWK *Accipiter castanilius*
Breeding data: in Tshuapa district, Equateur, I collected juveniles in January–March (four), on 28 April (one) and 9 June (one); also one obtained at Umangi, Mongala district, near the Congo River, on 8 May (RMCA). The main breeding period of this resident is January–April, i.e. the same months as African Goshawk *A. tachiro* (five specimens in RMCA). Breeding in DR Congo is not mentioned by Brown *et al.* (1982).

SHIKRA *Accipiter badius*
Breeding data: a nestling of the race *polyzonoides* found in Upemba NP, Katanga, on 9 October 1947 (Verheyen (1953); copulation of the race *sphenurus* observed at Bokilio, Equateur, late January 1965, and two nestlings found there in March 1965 (V. Maes *in litt.* 1978). No breeding dates for DR Congo in Brown *et al.* (1982).

LESSER SPOTTED EAGLE *Aquila pomarina*
A subadult, fitted with a transmitter in Namibia in February 1994, flew over DR Congo's eastern rainforest in the first half of April that year (Meyburg *et al.* 2001). This constitutes the first proof of passage of this Palearctic raptor through DR Congo. It was mapped for the south-east of the country in Brown *et al.* (1982), probably on the basis of its occurrence in adjacent countries. It is known from Rwanda and Burundi (Vande weghe 1974, Gaugris *et al.* 1981).

WAHLBERG'S EAGLE *Aquila wahlbergi*
Ringed birds from southern Africa have been recorded on northbound passage, on 23 September 1979 (one, ringed on 17 December 1967 in Zimbabwe, shot near Mwenga, South Kivu: Oatley 1983), 18 April 1994 (one, ringed on 30 December 1992 in Transvaal, South Africa, captured at Kabongo, Katanga: Oatley 1994), and 22 and 27 April 1995 (an adult female, ringed on 2 January 1995 and fitted with a transmitter in Kruger NP, South Africa, recorded 39 km north-west of Kolwezi, Katanga, on 22 April and 93 km north-west of Kindu-port, Maniema, on 27th: Meyburg *et al.* 1995).

LONG-CRESTED EAGLE *Lophaetus occipitalis*
Breeding data: Vrydagh (1949) found a nest containing one young atop a large *Khaya* sp. tree at *c.*10 m, on the Ishwa Plain, Oriental province, in early March 1942. A juvenile unable to fly was brought to Prigogine (1953), at Lutunguru, North Kivu, in late December 1949. These records are not mentioned in Brown *et al.* (1982).

GREY KESTREL *Falco ardosiaceus*
In Equateur province, common in the savanna of Ubangi district and in woodland north of 03°N (Guissart 1976, Maes 1988, Dejaifve 1990, 1994a) but not in the southern part of the district, nor in Equateur and Tshuapa districts (in the south-east to *c.*02°S), where it was not reported prior to 1960. At Mbandaka I saw two on 28–29 March and one on 29 April 1952. Although no records were known from that area at the time or from the central Congo basin, Brown *et al.* (1982) map it for almost the entire country.

CRESTED GUINEAFOWL *Guttera pucherani*
In Equateur province, four clutches of 6, 6, 8 and 10 eggs respectively were found in Tshuapa district in August–October and January (Herroelen 1955), and very young birds in early February and early May. Urban *et al.* (1986) do not mention laying dates for DR Congo.

AFRICAN FINFOOT *Podica senegalensis*
In Equateur province, I collected nine young in Tshuapa and Equateur districts between mid December and mid April, indicating a breeding period in the second half of the high-water season. Four other juveniles (one June, three August: RMCA) may point to other reproduction months or represent replacement clutches. Reproduction of the finfoot in DR Congo has been known for many years and Chapin (1939, pl. VI, fig. 2) published a photograph of a downy young, obtained on 14 December 1930, but this evidence was not taken into account by Urban *et al.* (1986).

PIED AVOCET *Recurvirostra avosetta*
Data additional to those published by Demey *et al.* (2000): a female collected at Banana, Bas-Congo, on 20 December 1951 (RMCA) and one observed there in March 1955 by I. Mesmaekers (*in litt.* 1955); an unsexed bird collected at Gangala-na-Bodio, Oriental province, in November 1956 (RMCA); two collected at Itula, South Kivu, on 20 April, and three recorded in the Rusizi Delta, South Kivu, on 20 October 1968 (Prigogine 1971).

BLACK-WINGED PRATINCOLE *Glareola nordmanni*
This migrant frequents open places in the forest belt; passage occurs in small groups (2–7 birds, rarely more) in September–October (earliest date 3 September 1950, latest 21 October 1959), but there are only three records for the return migration: 29 and 31 March 1938 Bambesa, Oriental province, 10 April 1955 Basankusu, Equateur, and 15 April 1952 Garamba NP, Oriental province (IRSNB).

WHITE-FRONTED PLOVER *Charadrius marginatus*
On sandbanks of the Congo River near Mbandaka, Equateur, I noted two adults with two full-grown juveniles in late August 1958 and one adult with two juveniles late April 1959. RMCA holds a very young bird obtained near Bokungu, Equateur, on 1 January 1954. The widely divergent reproduction dates are probably linked to the periodical availability of sandbanks. Urban *et al.* (1986) give no breeding data for the country.

LONG-TOED PLOVER *Vanellus crassirostris*
In March 1955 I. Mesmaekers collected a male of the form *leucoptera* at 'Cul de Boma', Bas-Congo, the first record for the coastal area (Schouteden 1955a). Previously this subspecies was known only from Katanga (Schouteden 1971).

TEMMINCK'S STINT *Calidris temminckii*
Additional records: Rusizi marshes, South Kivu, February 1952, six records; 3 March 1959, one (Curry-Lindahl 1960); Lake Edward, North Kivu, April 1952, three records; February 1959, three records; Kasalia, North Kivu, 15 January 1959, one (Curry-Lindahl 1961). In Equateur province singles were collected on 23 November 1958 near Mbandaka and 15 October 1960 at Bwamanda, Ubangi district (RMCA). A specimen from Buta, Oriental province, is erroneously mentioned by Lippens & Wille (1976) as taken on 18 April 1936; the correct date is 20 November 1939 (Schouteden 1963a; RMCA). A Temminck's Stint was indeed collected on 18 April 1936, but at Vitshumbi, North Kivu (Lippens 1938).

GREAT SNIPE *Gallinago media*
The correct date of a bird with a Russian ring, captured near Feshi, Bandundu, in 1957, is 23 January (file at the Ringing Scheme, Brussels), not 23 June (as mentioned by De Bont 1960).

GREY-HEADED GULL *Larus cirrocephalus*
Banana, Bas-Congo, 13 April 1953, one collected (RMCA). Previously known only from eastern DR Congo and Katanga (Curry-Lindahl 1961, Ruwet 1964, Schouteden 1971), and apparently rare along the Atlantic coast (I. Mesmaekers pers. comm.).

CASPIAN TERN *Sterna caspia*
Details of a third ringing recovery (mentioned by Herroelen 1986), are as follows: ringed as a pullus on 5 July 1960 at Eckerö, Åland, Finland (Helsinki 33449), and found dead on 20 November 1960 at Kouango, Equateur, distance 6,160 km (J. Ruoho *in litt.* 2001).

COMMON TERN *Sterna hirundo*
A bird ringed as a nestling in Norway in July 1997 was killed at Matadi, Bas-Congo, *c.*140 km from the Atlantic coast, on 18 December 1998 (Runde 2000). This constitutes the first record inland; all other specimens were collected at Banana, on the coast (Prigogine 1979).

AFRICAN SKIMMER *Rynchops flavirostris*
Breeding data, all from Equateur province: I collected a female with a large egg in the oviduct at Isenga, on the Ruki River, 1 May 1952. The same day I observed eight birds, apparently breeding, on two small sandy islands. In late July, I found four nests with, respectively, 3, 3, 3 and 4 incubated eggs on a sandbank in the Congo River near Yangala. Sixteen adults were present in the same area on 1 March 1958, but I found only one egg. Chapin (1939) mentions two nests with 2 and 3 eggs at Lukolela in March.

WHITE-NAPED PIGEON *Columba albinucha*
According to Urban *et al.* (1986) the downy young and nestling have not been described. A specimen of a young born at the Antwerp Zoo in 1966, which died at *c.*15 days (RMCA 114591), has dark brown body plumage, remiges and down feathers, and more blackish-brown rectrices. The cere is yellow-brown, the legs dirty yellow and claws blackish brown.

RED-EYED DOVE *Streptopelia semitorquata*
In the central Congo basin I observed song-flights in May–September and December–January; I collected two females with formed eggs in the oviduct early August 1957 and early September 1959, and downy young late May 1951 (69 g), late September 1950 (134 g) and mid October 1958. RMCA holds seven nestlings, from Kinshasa (June, one), Mbomo, near Bolobo, Bandundu (1 May, one; 1 June, one), Kisangani, Oriental province (mid June 1912, one) and Butembo, North Kivu (2 July, two; 1 February, one). According to Chapin (1939) the species nests in

September–October and December–February in Oriental province. Urban *et al.* (1986) do not mention laying dates for Congo.

EUROPEAN TURTLE DOVE *Streptopelia turtur*
A female was collected in Garamba NP, Oriental province, on 2 December 1951 (IRSNB 46952). This constitutes the sixth country record and the first in December. Previous records are listed by Louette (1988) and Demey *et al.* (2000).

EMERALD-SPOTTED WOOD DOVE *Turtur chalcospilos*
Breeding data (lacking for Congo in Fry *et al.* 1988): juveniles collected in Upemba NP, Katanga, in June (one), July (four), October (two) and November (one) (Verheyen 1953). Poelman (1967) described courtship behaviour of the male on the ground and obtained three juveniles (April, one; May, two) in the Kasapa area, Lubumbashi, Katanga.

BLUE-SPOTTED WOOD DOVE *Turtur afer*
Chapin (1939) located two nests, one at Faradje, Oriental province, in late January, a second at Lukolela, Equateur, in early March. The species breeds in the rains in Equateur province, from July to March, as proved by the following: a very young bird on 7 August 1931 at Lukolela (RMCA), two nests on 20 September and 6 November 1953 at Iyonda, containing one and two eggs respectively (G. Michielsen pers. comm.), a two-week old bird brought to me at Mbandaka on 26 November 1957, a young bird ready to fly received at Basankusu on 7 December 1953, adults carrying nest material in early October 1957, mid December 1950 and mid March 1952 at Mbandaka and two copulating pairs there on 22 January 1957. Urban *et al.* (1986) do not mention laying dates for Congo.

LEVAILLANT'S CUCKOO *Oxylophus levaillantii*
According to Chapin (1939) and Fry *et al.* (1988) lays April–October with young in May and October, but in Upemba NP, Katanga, Verheyen (1953) collected an egg-laying female on 12 February and stated that reproduction ends in March. RMCA holds two nestlings obtained at Kiambi, Katanga, in the period 27 April–3 May 1931 and a very young specimen collected on 13 May 1913 at Sanghi-Rusizi, South Kivu.

WHITE-FACED OWL *Otus leucotis*
In Equateur province, observed by V. Maes (*in litt.* 1993) at Gemena in 1956 and by Dejaifve (1990) at Bili on 20–21 January 1990. According to Jehl (1976) this owl is common around Kembé Island (04°36'N, 21°54'E), near Bangui, Central African Republic. In Snow (1978) the species is erroneously reported for Tshuapa district (an error repeated by Fry *et al.* 1988) and for Lukolela, quoted by Bouet (1961), but Chapin (1939) does not mention it.

FOREST WOOD-HOOPOE *Phoeniculus castaneiceps*
Fry *et al.* (1988) state this species was found in the area of the 'Ruki River' where 'Ikenge', *c.*60 km south-east of Mbandaka, Equateur, was mistaken for 'Ikengo', 26 km south-west of Mbandaka. The bird was collected there outside the forest, on 15 October 1953, by G. Michielsen (RMCA).

WHITE-CRESTED HORNBILL *Tockus albocristatus cassini*
Bare parts in adults (six males, five females): eyes cream or milky white, bill black, chin and throat patch pinkish, legs and feet greyish blue or pale slate, claws black; in another male (weight 290 g) irides greyish blue, bill white-tipped with a white line in front of the nostril. In a large nestling male, collected with the adult female, the eyes were whitish, circumorbital skin white, bill ivory white with a black patch below the nostril, distal half of lower mandible black, legs white, feet white tinged bluish, and claws black. In two other juveniles the bill was bicoloured black and white, or black with small white speckles. In a fourth the distal part of the bill was white over 22 mm on the upper mandible and 33 mm on the lower. Sexual dimorphism in size is confirmed in weight scores, both in adults and juveniles: four males 270–290 (283.8) g, 16 males 303–399 (312.4) g, four females 204–238 (223.5) g; juveniles: two males 240 and 287 g, two females 193 and 212 g. One adult female, captured on the nest with a large nestling, weighed 270 g and I was able to recover 50 g of body fat; 'she was well fed, actually fat' as previously stated in a similar record by Chapin (1939). The 310 g for males quoted by Kemp (1995) applies very well to the mean weight of the Congo subspecies.

Aside of grasshoppers, beetles and large caterpillars, I found in the stomachs a large spider, large ants, winged ants and seeds of a liana *Ancistrophyllum secundiflorum*.

BLACK DWARF HORNBILL *Tockus hartlaubi*
Two males were collected from within mixed-species bird flocks in February 1956 and March 1959 by my hunter Lokuli. The first flock contained a Bare-cheeked Trogon *Apaloderma aequatoriale*, a Yellow-spotted Barbet *Buccanodon duchaillui* and a Red-tailed Bristlebill *Bleda syndactylus*, and the second a Red-billed Dwarf Hornbill *Tockus camurus* and Sabine's Puffback *Dryoscopus sabini*. The habit of joining mixed-species flocks is not mentioned in Fry *et al.* (1988).

SLADEN'S BARBET *Gymnobucco sladeni*
Prior to my collecting one, I noted that the bird was the last of a party of *c.*20 Grey-throated Barbets *G. bonapartei* to depart a *Musanga cecropioides* tree for another one. It was perched silently and appeared less shy and slightly larger than the other barbets that had already left. Based on a small series of 13 males and five females, Sladen's Barbets weighed 48–59 (51.9) and 41–50 (45.8) g respectively, against 11 males 35–52 (43.9) and ten females 37–52 (43.3) g of Grey-throated Barbet. One male with enlarged testes had a small amount of fat on the throat and an identical

record was made in a female *G. bonapartei*. Besides seeds of *Musanga cecropioides*, I found in three stomachs of *G. sladeni* seeds of *Ficus* sp. and *Harungana madagascariensis*. For comparison, two stomachs of *G. bonapartei* held fruits of *Bridelia* sp. and a large ant *Camponotus maculatus*. I collected three juveniles of *G. sladeni* mid September in Tshuapa district, Equateur, and two others late May in the Mbandaka area, where 11 males had enlarged testes and active wing moult in January–August. Two females I took on 8 May at Bokeka, Equateur, were not in breeding condition, whilst two others collected on 11 March near Mbandaka had slightly enlarged ovaries and active wing moult.

GREY-BACKED SPARROW LARK *Eremopterix verticalis*
Occurrence not listed in Hall & Moreau (1970) nor in Keith *et al.* (1992), despite the 16 specimens having been taken near Moanda on the Atlantic coast (Schouteden 1954, 1957). RMCA holds a juvenile female obtained on 5 June 1954 at Kitona, indicating an egg-laying period in the second half of May.

MOSQUE SWALLOW *Hirundo senegalensis*
Two males were collected at Gemena and Bobito, Ubangi district, Equateur (Schouteden 1962a), where the species breeds April–September (V. Maes pers. obs.) and where Dejaifve (1990) recorded it in 1989–90. The distribution map in Keith *et al.* (1992) is in error, as the species was never collected nor recorded in the period 1930–60, being limited to Equateur and Tshuapa districts between 02°N and 02°S. An undated record from Eala, Equateur district (Schouteden 1924, 1955b, 1961) cannot be accepted due to possible confusion with Red-breasted Swallow *H. semirufa*.

RED-CHESTED SWALLOW *Hirundo lucida*
According to Keith *et al.* (1992) this swallow occurs along the Congo River, but Chapin (1953) 'never noticed it at Lukolela' nor did G. Michielsen (*in litt.* 1958) up to 1958 at Iyonda, Equateur, or myself in 1957–60 at Mbandaka. This species, which is restricted to the Kisangani area, Oriental province, is probably replaced by another species in the Kinshasa area.

YELLOW WAGTAIL *Motacilla flava*
A first-year collected on 12 August 1952 in 'camp de l'Aru', Oriental province (Schouteden 1963a), constitutes the earliest autumn date for the country. Normally the first autumn migrants are recorded in the second half of September (Schouteden 1963a).

GRASSLAND PIPIT *Anthus novaeseelandiae*
Breeding data: *A. n. lacuum* in North Kivu, early April a clutch of two eggs and breeding season February–July (Lippens & Wille 1976). A juvenile from Buta, Oriental province, was collected in February (Chapin 1953) and RMCA has 12

juveniles (December: two, January: one, April: two, May: two, June: one, July: one, September: one, and October: two), demonstrating that the species breeds in nearly all months. In *A. n. itombwensis* egg laying apparently starts February or March and breeding continues until April–May and July (Prigogine 1971 under *A. latistriatus*). In Prigogine (1981) Table 3 lists a juvenile from May and seven others from October–November.

LONG-BILLED PIPIT *Anthus similis*
Schouteden (1923) collected three at Macaco, West Kasaï, and Chapin (1937) includes these 'young examples' in his account of *A. s. schoutedeni*, named as a new subspecies; the three juveniles were obtained on 26, 27 and 30 September 1921 and the eggs were probably laid in late August. Keith *et al.* (1992) give no breeding data for Congo.

PLAIN-BACKED PIPIT *Anthus leucophrys*
Breeding data: in Katanga, a juvenile was obtained in February 1966 in the Kundelungu Highlands, and immatures were collected in March 1926 at Kabalo and on 23 November 1950 at Kasaji. In the Kasaï, worn juveniles were obtained on 18 July 1944 at Merode-Dibaya, West Kasaï, and on 30 October 1954 at Kasansa, East Kasaï. An immature male was secured on 24 January 1952 at Gandajika, East Kasaï. All these are in RMCA and are of the subspecies *bohndorffi*. For comparison, Lynes (1938) collected eight adults and eight immatures in August–March, in the southern Congo basin, but it is difficult to establish which months these birds were breeding when Lynes states that it is 'in the latter part of the dry-season'. In northern Congo, where *A. l. zenkeri* is common, fully fledged young were collected in the early part of the rains, on 14 April, 6 May and 29 June (Chapin 1953). Additional data from RMCA complete the picture: in Oriental province, three juveniles and an immature obtained: on 22 March 1951 in Garamba NP (immature), 20 April 1944 at Gangala-na-Bodio, 3 June 1925 at Djalasinda and 12 July 1925 at Faradje. In Equateur, Maes collected a juvenile on 11 November 1957 at Bwamanda, and this date may indicate another breeding period. Keith *et al.* (1992) do not mention laying dates nor breeding period for the country.

LONG-LEGGED PIPIT *Anthus pallidiventris*
A male pipit collected by Prigogine at Namoya (altitude 640 m), South Kivu, on 19 August 1960 and identified and labelled by Schouteden as *A. leucophrys turneri* (RMCA 107340) has emarginated outer webs to four outer primaries (2–5), indicating it is a Long-legged Pipit. This is the first record for Kivu, 1,120 km east-southeast of Mbandaka, the main range of the species. According to Keith *et al.* (1992) laying dates are probably May–July, at the end of the rains, but this period was attributed by Chapin (1953) to *A. p. esobe*. Two worn juvenile males from the Bolobo area, Bandundu, of the same subspecies, were obtained on 20 August 1959 and 23 November 1951, whilst five immatures from this area were secured in

January–May and one in early August. An immature and juvenile *A. p. pallidiventris* were collected at Moanda, Bas-Congo, on 22 August 1920 and 15 November 1945 respectively (all in RMCA).

RED-THROATED PIPIT *Anthus cervinus*
The correct date for the specimen from Buta, Oriental province, a male in worn condition, is 4 June 1940 (Schouteden 1963a), not May (Chapin 1953). Most other records are from North Kivu (Schouteden 1969, Lippens & Wille 1976), but there is one for Equateur: at Bili, on 1 December 1989 (Dejaifve 1990).

RED-SHOULDERED CUCKOO-SHRIKE *Campephaga phoenicea*
According to Keith *et al.* (1992) the nestling is unknown, and status in DR Congo is not specified. RMCA possesses a feathered nestling of *c.*1 week old (RMCA 16217), taken at Medje, Oriental province, on 25 August 1925. The remaining down is extremely pale grey. Chapin (1953), who collected 11 in Haut-Uele, found individuals with enlarged gonads in February–April (two males, one female) but no nests. Based on five juveniles obtained in the same area (28 July, 29 July, 24 August, 25 November, 11 December: all in RMCA) the egg-laying period is June–July and October–November. In Ubangi and Mongala districts, Equateur, the species was noted early November–early April (seven skins RMCA; Schouteden 1962, Maes 1988, Dejaifve 1990), and in Bas-Uele, Haut-Uele and Ituri districts, Oriental province, birds were recorded year-round (28 records November–April; 20 records May–October) (Vrydagh 1949, Schouteden 1963a,b).

FOREST ROBIN *Stiphrornis erythrothorax*
Keith *et al.* (1992) quote weights (15–17 g) of unsexed birds from Uganda. I obtained four males weighing 15–22 (18.0) and three females weighing 15, 20 and 24 (19.7) g.

SNOWY-HEADED ROBIN CHAT *Cossypha niveicapilla*
According to Chapin (1953) and Schouteden (1962, 1963a) this species occurs, in the west, in the Bas-Congo, and, further east, in Ubangi district, Equateur, and Oriental province. The gap along the Congo River is now filled by three specimens from the Mbandaka area, Equateur (all in RMCA): an immature male and adult female taken at Ikengo in May 1954, and an adult male (weight 43 g) obtained at Mbandaka in late November 1959.

WHINCHAT *Saxicola rubetra*
The distribution map in Keith *et al.* (1992) leaves a blank for Equateur province and the central Congo basin despite several records in Schouteden (1961, 1962). The species arrives in the second half of October in southern Ubangi district (V. Maes *in litt.* 1993) and in early November at Basankusu and Mbandaka, Equateur district, where it winters in small numbers (pers. obs.). In Ubangi district it is common until

late April; according to Dejaifve (1994b) *c.*300,000 birds may occupy an estimated 400,000 ha of suitable habitat.

AFRICAN MOUSTACHED WARBLER *Melocichla mentalis*
Hall & Moreau (1970) mapped this warbler from the central forested Tshuapa district, Equateur, at 00°14'S, 20°50'E, which corresponds to Boende. This is a true savanna species and no specimen from that area could be located in RMCA nor in the The Natural History Museum, Tring (M. P. Adams *in litt.* 2001), suggesting that this locality is in error.

GREATER SWAMP WARBLER *Acrocephalus rufescens*
A nest, attached to three sorghum stems and containing two well-feathered young, was found at Bwamanda, Equateur, on 7 October 1974, near a rural habitation (V. Maes *in litt.* 1978). Urban *et al.* (1997) give no breeding data for Congo.

BLACK-NECKED CISTICOLA *Cisticola eximius*
According to Urban *et al.* (1997), this species only occurs in the savannas of Uele, Oriental province, but two males were collected in Ubangi district, Equateur (Schouteden 1955b, 1962), at Bosodula in October 1941 and at Bwamanda in April 1957. This species, which prefers short grassland (Maes 1988), is rare in Congo.

OLIVE-GREEN CAMAROPTERA *Camaroptera chloronota*
According to Urban *et al.* (1997) the entire forested area of the central Congo basin is occupied by this species, but specimens are lacking in RMCA.

LEMON-BELLIED CROMBEC *Sylvietta denti*
Urban *et al.* (1997) give no breeding data for Congo, despite Prigogine's (1971) statement that it breeds in January in South Kivu. Prigogine apparently did not take into account his own specimens of four immatures (all in RMCA) obtained late June, late July, early August and mid September. The breeding period in Kivu thus probably extends into August. In Equateur province an immature was collected at Iyonda on 28 September 1951 (RMCA 58233).

COMMON CHIFFCHAFF *Phylloscopus collybita*
Püttger-Conradt (2002) reported two singing birds in Kinshasa-Limete in January 1989. This remarkable single-observer claim would constitue the southernmost Common Chiffchaff in Africa and is best treated as 'unconfirmed' pending further evidence. The only previous record from the country, at Luluabourg (now Kananga), West Kasaï, on 20 April 1924, must be rejected as the specimen, reportedly deposited at the Museum d'Histoire naturelle, Geneva (de Schaeck 1927), cannot be traced (A. Cibois *in litt.* 2002).

COMMON WHITETHROAT *Sylvia communis*
Keith *et al.* (1997) map the occurrence of this warbler only for the north-east and south-east of the country despite two specimens being taken in February at Iyonda, Equateur (Schouteden 1961), and the ringing of nine individuals in November–March at Lovanium, near Kinshasa, by De Bont *et al.* (1965). At Iyonda, a third specimen was obtained on 6 December 1957 (RMCA), and Maes (1993) recorded it at Bokilio, Equateur, from 13 February to 2 April 1965.

WHITE-BROWED FOREST FLYCATCHER *Fraseria cinerascens*
Urban *et al.* (1997) only mention the occurrence of young birds in October (based on Chapin 1953). RMCA holds seven juveniles from three different areas: early March from Botanankasa, Bandundu, early March, late May and early June from Buta, Panga and Ibembo, Oriental province, and early August, the fourth week of October and December from Kasaï.

GAMBAGA FLYCATCHER *Muscicapa gambagae*
Only known from extreme north-east DR Congo, in Oriental province: a male was collected in December at Aba (Chapin 1953) and three males were taken at Dramba on 18 April 1925 (Schouteden 1963b, not in February, as stated therein). One of these is a first-year (wing 55 mm, tail 26 mm), constituting the first breeding record for DR Congo.

ASHY FLYCATCHER *Muscicapa caerulescens*
Urban *et al.* (1997) mention only November as a breeding month for DR Congo, but Prigogine (1971) notes February–June and September–October as egg-laying periods in Itombwe, South Kivu. Four immatures were taken there in late November–late March. In West Kasaï, a juvenile was obtained late September, and in Katanga, three juveniles were secured at Kasaji on 12 October, 12 November and 16 December (RMCA). Verheyen (1953) listed six juveniles as taken in Upemba NP, Katanga, in September–November (3), February (1) and late July (2).

OLIVACEOUS FLYCATCHER *Muscicapa olivascens*
RMCA holds three juveniles: one collected mid February at Nkone, Equateur, and two others from Kailo, Maniema, obtained mid July and mid September. According to Chapin (1953) and Urban *et al.* (1997) males are in breeding condition in May.

LEAD-COLOURED FLYCATCHER *Myioparus plumbeus*
Occurrence in the central Congo basin north and south of the Congo River is not mapped in Urban *et al.* (1997). In Equateur province, six specimens were obtained in Ubangi and five others in Tshuapa district (Schouteden 1961, 1962), and I recorded it in October–December 1954, at Bokeka, Basankusu district.

PIED FLYCATCHER *Ficedula hypoleuca*
Vrydagh (1949) collected two specimens, on 23 and 26 March 1942, at Mont Mé, Ituri, Oriental province. These constitute the first proof of the species' occurrence in DR Congo. This flycatcher may also reach northern Ubangi district, Equateur, as a specimen was collected at Bangui, Central African Republic, in November 1970 (Germain & Cornet 1994). Lippens & Wille (1976), based on a ringing report by Dupond (1940), erroneously mentioned a capture north of Mbuji Mayi, East Kasaï, in 1939. The bird was a Spotted Flycatcher *Muscicapa striata*, ringed on 4 July 1938 in Sweden and captured 95 km north-west of Mbuji Mayi (at 04°10'S, 22°50'E), in spring 1939 (letter dated 23 May 1939). This error was corrected by Rendahl & Vestergren (1960), and reported by Zink (1985).

RUFOUS-VENTED PARADISE FLYCATCHER *Terpsiphone rufocinerea*
In Urban *et al.* (1997) single records are listed from Kamaiembi, West Kasaï, and 'Ngombi on middle Congo River'. The correct locality of the latter is Ngombe Lutete, Bas-Congo, where a young bird was obtained by Bohndorff (Chapin 1953).

WHITE-SPOTTED WATTLE-EYE *Dyaphorophyia tonsa*
Cited in Urban *et al.* (1997) from Salonga NP, but according to Schouteden (1962) it was collected at Bolafa, Equateur, on the Lopori River.

WHITE-FRONTED WATTLE-EYE *Platysteira albifrons*
Stated to occur in the south-west by Lippens & Wille (1976), and thus also listed by Dowsett (1993). Reichenow (1905) mentions it for the 'Congo region', Sclater (1930) states that it occurs north to the Congo, at 'Ngombi', which was repeated by Bannerman (1936). However, Chapin (1953) expressed doubts concerning its occurrence on the Congo River, stating 'All the specimens taken by Bohndorff at Ngombe Lutete that I have seen are *P. cyanea nyansae*'. The Berlin museum holds a young bird collected by Bohndorff in August at Ngombe, Bas-Congo, which was initially labelled *albifrons*, but was subsequently reidentified as *P. cyanea nyansae* (J. Fiebig *in litt.* 2002). As there are no other records of *P. albifrons* from DR Congo, the species should be removed from the country's list.

SUPERB SUNBIRD *Cinnyris superba*
Weights in 17 males 18–24 (21.5) and in four females 16–20 (18.5) g. Stomach contents: a spider, a berry, a snail, insects, beetles, nectar, seeds, ants, and seeds of the tree *Xylopia aethiopica*.

SQUARE-TAILED DRONGO *Dicrurus ludwigii sharpei*
Schouteden (1962) and Dejaifve (1990, 1994) list this species for Ubangi district, Equateur, based on one obtained by Alexander on Luma (Louma) Island, incorrectly situated in 'territoire Banzyville'. According to M. P. Adams (*in litt.* 2001) the bird

is a male collected on 20 November 1905 from the right bank of the Ubangi River near Luma Island (04°35'N, 20°29'E), in the Central African Republic. There are no specimens in RMCA from Uele and Ubangi, but V. Maes (*in litt.* 1962) recorded a drongo at Bwamanda, Ubangi district, in 1960 (no date) and on 15 January 1962. In his notes the bird is described as 'having a square tail and no gloss on the upperparts and it was recorded in the forest', but these details are insufficient to accept Square-tailed Drongo as occurring in Ubangi district. Maes probably saw a Shining Drongo *D. atripennis*, but this species' presence is not proven by a specimen either (Schouteden 1962).

Acknowledgements

For their assistance, I thank M. P. Adams (Natural History Museum, Tring), J. Fiebig (Museum für Naturkunde, Berlin), A. Cibois (Muséum d'Histoire naturelle, Geneva), P. Sweet (American Museum of Natural History, New York), W. Roggeman (head of the Belgian Ringing Scheme), G. Lenglet (Institut Royal des Sciences Naturelles, Brussels), J. Ruoho (Ringing Centre, Helsinki), and M. Louette (RMCA, Tervuren). M. Herremans and M. Louette commented on an early draft of this paper. R. Demey assisted in producing the final version and greatly improved the manuscript

References:

Bannerman, D. A. 1936. *The birds of tropical West Africa*, vol. 4. Crown Agents, London.

Bouet, G. 1961. *Faune de l'Union Française XVII. Oiseaux de l'Afrique tropicale.* ORSTOM, Paris.

Brown, L. H., Urban, E. K. & Newman, K. (eds.) 1982. *The birds of Africa*, vol. 1. Academic Press, London.

Chapin, J. P. 1921. Notes on a new ox-pecker and other little-known birds of the Congo. *Amer. Mus. Novit.* 17.

Chapin, J. P. 1932. The birds of the Belgian Congo. Part 1. *Bull. Amer. Mus. Nat. Hist.* 65.

Chapin, J. P. 1937. The pipits of the Belgian Congo. *Rev. Zool. Bot. Afr.* 29: 336–345.

Chapin, J. P. 1939.The birds of the Belgian Congo. Part 2. *Bull. Amer. Mus. Nat. Hist.* 75.

Chapin, J. P. 1953. The birds of the Belgian Congo. Part 3. *Bull. Amer. Mus. Nat. Hist.* 75A.

Curry-Lindahl, K. 1960. Ecological studies on mammals, birds, reptiles and amphibians in the eastern Belgian Congo. Part II. *Ann. Mus. Roy. Congo Belge, Sér. 8, Zool.*, 87: 1–170.

Curry-Lindahl, K. 1961. Contribution â l'étude des Vertébrés terrestres en Afrique tropicale. *Exploration du Parc National Albert et du Parc National de la Kagera.* Fase. 1. Inst. Parcs Nat. du Congo et du Ruanda-Urundi, Brussels.

De Bont, A. F. 1960. Résultats du baguage d'oiseaux au Congo Belge et au Ruanda-Urundi. *Gerfaut* 50: 42–47.

De Bont, A. F., De Roo, A. & Deheegher, J. 1965. Résultats du baguage d'oiseaux en République Démocratique du Congo et en République du Rwanda. *Gerfaut* 55: 394–457.

Dejaifve, P. A. 1990. *Esquisse de l'avifaune de la Mondjo, nord du Zaïre*. Privately published, Namur.

Dejaifve, P. A. 1994a. Contribution â l'étude de l'avifaune de la savanne guinéenne du Nord-Ubangui, Zaïre. *Gerfaut* 84: 63–71.

Dejaifve, P. A. 1994b. Ecologie et comportement d'un migrateur paléarctique, le Traquet tarier *Saxicola rubetra* (L.) au Zaïre et sa répartition hivernale en Afrique. *Rev. Ecol. (Terre et Vie)* 49: 35–52.

Demey, R., Herroelen, P. & Pedersen, T. 2000. Additions and annotations to the avifauna of Congo-Kinshasa (ex-Zaïre). *Bull. Brit. Orn. Cl.* 120: 154–172.

de Schaeck, F. 1927. Sur l'hivernage et le passage d'oiseaux d'Europe au Kassaï (Congo Belge). *Bull. Soc. Zool. Genève* 3 (6): 79–81.

Dowsett, R. J. 1993. Zaïre. Pp. 195–204 *in* Dowsett, R. J. & Dowsett-Lemaire, F. *Afrotropical avifaunas: annotated country checklists*. Tauraco Res. Rep., Liège.

Dupond, C. 1940. Oiseaux bagués à l'étranger et retrouvés en Belgique. *Gerfaut* 30: 166–168.
Elliott, C. C. H. & Jarvis, M. J. F. 1970. Fourteenth ringing report. *Ostrich* 41: 1–117.
Fry, C. H., Keith, S. & Urban, E. K. (eds.) 1988. *The birds of Africa*, vol. 3. Academic Press, London.
Fry, C. H., Keith, S. & Urban, E. K. (eds.) 2000. *The birds of Africa*, vol. 6. Academic Press, London.
Gaugris, Y., Prigogine, A. & Vande weghe, J. P. 1981. Additions et corrections â l'avifaune du Burundi. *Gerfaut* 71: 3–39.
Germain, M. & Cornet, J.-P. 1994. Oiseaux nouveaux pour la République Centrafricaine ou dont les notifications de ce pays sont peu nombreuses. *Malimbus* 16: 30–51.
Guissart, A. 1976. Contribution à l'étude de l'avifaune du nord du Zaïre. *Gerfaut* 66: 252–260.
Hall, B. P. & Moreau, R. E. 1970. *An atlas of speciation in African passerine birds*. Brit. Mus. (Nat. Hist.), London.
Herroelen, P. 1955. Notes sur quelques nids et oeufs inconnus d'oiseaux africains observés au Congo Belge. *Rev. Zool. Bot. Afr.* 52: 185–192.
Herroelen, P. 1962. Over de rui en de trek van de Scharrelaar (*Coracias garrulus* L.) in Centraal Afrika. *Gerfaut* 52: 408–415.
Herroelen, P. 1986. La Sterne caspienne *Sterna caspia* à l'intérieur du Zaïre. *Malimbus* 8: 21–22.
Jehl, H. 1976. Les oiseaux de l'île de Kembé (R.C.A.). *Alauda* 44: 153–167.
Keith, S., Urban, E. K. & Fry, C. H. (eds.) 1992. *The birds of Africa*, vol. 4. Academic Press, London.
Kemp, A. 1995. *The hornbills*. Oxford Univ. Press.
Lippens, L. 1938. Les oiseaux aquatiques du Kivu. *Gerfaut* 28: 1–103.
Lippens, L. & Wille, H. 1976. *Les oiseaux du Zaïre.* Lannoo, Tielt.
Louette, M. 1988. Additions and corrections to the avifauna of Zaïre (3). *Bull. Br. Orn. Cl.* 108: 112–120.
Lynes, H. 1938. Contribution to the ornithology of the southern Congo Basin. *Rev. Zool. Bot. Afr.* 31: 1–129.
Maes, V. 1988. *Noms Ngbaka de la faune et de la flore de l'Ubangi. Oiseaux*. Annexe au Dictionnaire Ngbaka–Français. Nova, Oostkamp.
Maes, V. 1993. Palearctische trekvogels in Ubangi, N.-W. Zaïre. *Wielewaal* 59: 189–194.
Meyburg, B.-U., Mendelsohn, J. M., Ellis, D. H., Smith, D. G., Meyburg, C. & Kemp, A. C. 1995. Year-round movements of a Wahlberg's Eagle *Aquila wahlbergi* tracked by satellite. *Ostrich* 66: 135–140.
Meyburg, B.-U., Ellis, D. H., Meyburg, C., Mendelsohn, J. M. & Scheller, W. 2001. Satellite tracking of two Lesser Spotted Eagles, *Aquila pomarina,* migrating from Namibia. *Ostrich* 72: 35–40.
Oatley, T. B. 1983. Twenty-third ringing report for southern Africa. *Ostrich* 54: 141–149.
Oatley, T. B. 1994. Selected recoveries from Safring: January 1994–June 1994. *Safring News* 23: 95–102.
Poelman, L. 1967. Les oiseaux de la Kasapa. *Publ. Univ. officielle du Congo à Lubumbashi* 14: 39–71.
Prigogine, A. 1953. Contribution à l'étude de la faune ornithologique de la région â l'ouest du lac Edouard. *Ann. Mus. Roy. Congo Belge, Sér. 8, Zool.* 24: 1–117.
Prigogine, A. 1965. Le pigeon à nuque blanche pour la première fois dans un jardin zoologique. *Zoo* 30 (3): 94–95.
Prigogine, A. 1971. Les oiseaux de l'Itombwe et de son hinterland. *Ann. Mus. Roy. Afrique Centrale, Sér. 8, Zool.* 185: 1–298.
Prigogine, A. 1979. Le statut de quelques sternes au Zaïre. *Gerfaut* 69: 503–505.
Prigogine, A. 1981. The status of *Anthus latistriatus* Jackson, and the description of a new subspecies of *Anthus cinnamomeus* from Itombwe. *Gerfaut* 71: 537–573.
Püttger-Conradt, A. 2002. Neuer Nachweis des Zilpzalps *Phylloscopus collybita* im Kongo. *Vogelwelt* 123: 105–109.
Reichenow, A. 1903. *Die Vögel Afrikas*, vol. 2. J. Neumann, Neudamm.
Runde, O. 2000. Stavanger Museum–Nye Gjenfunn i 1999. *Ringmerkaren* 13: 13–49.
Ruwet, J.-C. 1963–64. Notes écologiques et éthologiques sur les oiseaux des plaines de la Lufira supérieure (Katanga). I et II. *Rev. Zool. Bot. Afr.* 68: 1–60; 69: 1–63.
Schouteden, H. 1922. Note sur la distribution géographique de deux oiseaux congolais. *Rev. Zool. Bot.* 10: 72–76.

Schouteden, H. 1923. Contributions à la faune ornithologique du Congo Belge. I. Mes récoltes ornithologiques au Kasaï. *Rev. Zool. Bot. Afr.* 11: 308–352.
Schouteden, H. 1924. Contributions à la faune ornithologique du Congo Belge. IV. Mes récoltes ornithologiques à l'Equateur (Eala, Ikengo, et le lac Tumba). *Rev. Zool. Bot. Afr.* 12: 405–425.
Schouteden, H. 1936. Contribution à la faune ornithologique du nord-est du Congo Belge. *Ann. Mus. Congo Belge, Zool.* (4) 1: 41–156.
Schouteden, H. 1954. De Vogels van Belgisch Congo en van Ruanda-Urundi. VI. Passeriformes (1). *Ann. Mus. Roy. Congo Belge C., Zool.* 4 (4): 1–228.
Schouteden, H. 1955a. Quelques oiseaux de la faune congolaise. *Rev. Zool. Bot. Afr.* 51: 401–405.
Schouteden, H. 1955b. De Vogels van Belgisch Congo en van Ruanda-Urundi. VII. Passeriformes (2). *Ann. Mus. Roy. Congo Belge C., Zool.* 4: 229–524.
Schouteden, H. 1957. Faune du Congo Belge et du Ruanda-Urundi. IV. Oiseaux passereaux (1). *Ann. Mus. Roy. Congo Belge, Sér, 8, Zool.* 57: 1–314.
Schouteden, H. 1961. La faune ornithologique des districts de la Tshuapa et de l'Equateur. *Doc. Zool. Mus. Roy. Afr. Centr.* 1: 1–179.
Schouteden, H. 1962. La faune ornithologique des districts de la Mongala et de l'Ubangi. *Doc. Zool. Mus. Roy. Afr. Centr.* 3: 1–144.
Schouteden, H. 1963a. La faune ornithologique des districts du Bas-Uele et du Haut-Uele. *Doc. Zool. Mus. Roy. Afr. Centr.* 4: 1–241.
Schouteden, H. 1963b. La faune ornithologique du district de l'Ituri. *Doc. Zool. Mus. Roy. Afr. Centr.* 5: 1–144.
Schouteden, H. 1965. La faune ornithologique de la province du Kwango. *Doc. Zool. Mus. Roy. Afr. Centr.* 8: 1–60.
Schouteden, H. 1968. La faune ornithologique du Kivu. Non Passereaux. *Doc. Zool. Mus. Roy. Afr. Centr.* 12: 1–168.
Schouteden, H. 1969. La faune ornithologique du Kivu. Passereaux. *Doc. Zool. Mus. Roy. Afr. Centr.* 15: 1–188.
Schouteden, H. 1971. La faune ornithologique de la Province du Katanga. *Doc. Zool. Mus. Roy. Afr. Centr.* 17: 1–248.
Sclater, W. L. 1930. *Systema avium Aethiopicarum: a systematic list of the birds of the Ethiopian region.* Part II. Taylor & Francis for the British Ornithologists' Union, London.
Snow, D. W. (ed.) 1978. *An atlas of speciation in African non-passerine birds.* Brit. Mus. (Nat. Hist.), London.
Urban, E. K., Fry, C. H. & Keith, S. (eds.) 1986. *The birds of Africa*, vol. 2. Academic Press, London.
Urban, E. K., Fry, C. H. & Keith, S. (eds.) 1997. *The birds of Africa*, vol. 5. Academic Press, London.
Vande weghe, J. P. 1979.The wintering and migration of Palaearctic passerines in Rwanda. *Gerfaut* 69: 29–43.
Verheyen, R. 1953. *Exploration du Parc National de l'Upemba. Oiseaux.* Inst. Parcs Nat. Congo Belge, Fasc. 19.
Vrydagh, J. M. 1949. Observations ornithologiques en région occidentale du lac Albert et principalement de la Plaine d'Ishwa. *Gerfaut* 39: 1–115.
Zink, G. 1961. Ringfundergebnisse bei der Zwergrohrdommel. *Vogelwarte* 21: 113–118.
Zink G. 1985. *Der Zug europäischer Singvögel. Ein Atlas der Wiederfunde beringter Vögel*, Bd. 4. Lieferung, Vogelzug-Verlag, Möggingen.

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Gazetteer

Locality*	**Province**	**Coordinates**
Aba (Ituri)	Prov. Orientale	03°53'N, 30°16'E
Angodia (Bas-Uele)	Prov. Orientale	02°32'N, 25°47'E

Aru, camp (Haut-Uele)	Prov. Orientale	02°53'N, 30°51'E
Bambesa (Bas-Uele)	Prov. Orientale	03°28'N, 25°44'E
Banana	Bas-Congo	05°58'S, 12°27'E
Banzyville (Ubangi)	Equateur	04°18'N, 21°12'E
Basankusu (Equateur)	Equateur	01°12'N, 19°50'E
Bili (Ubangi)	Equateur	04°34'N, 19°43'E
Bobito (Ubangi)	Equateur	02°57'N, 19°25'E
Boende (Tshuapa)	Equateur	00°15'S, 20°51'E
Bokeka (Equateur)	Equateur	00°41'N, 19°57'E
Bokilio (Ubangi)	Equateur	03°46'N, 19°03'E
Bokote (Equateur)	Equateur	00°05'S, 20°08'E
Bokungu (Tshuapa)	Equateur	00°45'S, 22°25'E
Bolafa (Tshuapa)	Equateur	01°25'N, 22°05'E
Bolobo (Mai-Ndombe)	Bandundu	02°10'S, 16°17'E
Bosodula (Ubangi)	Equateur	04°32'N, 20°16'E
Botanankasa (Lac Leopold II)	Bandundu	02°16'S, 16°15'E
Buta (Bas-Uele)	Prov. Orientale	02°49'N, 24°50'E
Butembo	Nord-Kivu	00°09'N, 29°17'E
Bwamanda (Ubangi)	Equateur	03°10'N, 19°15'E
Cul de Boma	Bas-Congo	05°52'S, 12°59'E
Djalasinda (Ituri)	Prov. Orientale	02°10'N, 30°53'E
Dramba (Haut-Uele)	Prov. Orientale	03°40'N, 30°25'E
Eala (Equateur)	Equateur	00°02'N, 18°22'E
Edward, lake	Nord-Kivu	*c.*00°23'S, 29°36'E
Faradje (Haut-Uele)	Prov. Orientale	03°45'N, 29°43'E
Feshi (Kwango)	Bandundu	06°08'S, 18°12'E
Gandajika (Kabinda)	Kasaï Oriental	06°46'S, 23°58'E
Gangala-na-Bodio (Haut-Uele)	Prov. Orientale	03°41'N, 29°08'E
Garamba NP	Prov. Orientale	*c.*04°13'N, 29°24'E
Gemena (Ubangi)	Equateur	03°13'N, 19°48'E
Ibembo (Bas-Uele)	Prov. Orientale	02°36'N, 23°40'E
Ikenge (Equateur)	Equateur	00°06'S, 18°46'E
Ikengo (Equateur)	Equateur	00°10'S, 18°10'E
Isangi (Stanleyville)	Prov. Orientale	00°48'N, 24°10'E
Isenga (Tshuapa)	Equateur	00°10'N, 19°14'E
Ishwa Plain (Ituri)	Prov. Orientale	02°12'N, 31°10'E
Itombwe	Sud-Kivu	*c.*03°30'S, 18°55'E
Itula	Sud-Kivu	03°30'S, 27°50'E
Iyonda (Equateur)	Equateur	00°01'N, 18°13'E
Kabalo (Tanganika)	Katanga	06°02'S, 26°55'E
Kabinda (Kabinda)	Kasaï Oriental	06°10'S, 24°29'E
Kabongo	Katanga	07°53'S, 27°01'E
Kailo	Maniema	02°38'S, 26°07'E
Kamaiembi (Kasaï)	Kasaï Occidental	05°25'S, 21°17'E
Kananga (Lulua)	Kasaï Occidental	05°53'S, 22°26'E
Kasaji	Katanga	10°22'S, 23°29'E
Kasalia, Ishasha Plain	Nord-Kivu	00°45'S, 29°37'E
Kasansa (Kabinda)	Kasaï Oriental	06°33'S, 23°44'E
Kasapa	Katanga	05°25'S, 21°17'E

Kiambi	Katanga	07°20'S, 28°01'E
Kindu-port	Maniema	02°41'S, 25°08'E
Kinshasa	Kinshasa	04°18'S, 15°18'E
Kisangani (Stanleyville)	Prov. Orientale	00°33'N, 25°14'E
Kitona	Bas-Congo	05°58'S, 12°28'E
Kolwezi	Katanga	10°45'S, 25°25'E
Kouango (Ubangi)	Equateur	04°58'N, 19°58'E
Kundelungu Highlands	Katanga	*c.*10°00'S, 27°50'E
Liboli (Ubangi)	Equateur	02°50'N, 21°20'E
Lisafa (Equateur)	Equateur	01°°07'N, 19°45'E
Lovanium	Bas-Congo	04°15'S, 15°20'E
Lukolela (Equateur)	Equateur	01°10'S, 17°11'E
Lutunguru	Nord-Kivu	00°29'S, 28°47'E
Macaco (Kasaï)	Kasaï Occidental	05°28'S, 21°10'E
Matadi	Bas-Congo	05°50'S, 13°32'E
Mateba Island	Bas-Congo	*c.*05°55'S, 12°54'E
Mbandaka (Equateur)	Equateur	00°03'N, 18°28'E
Mbomo (Mai-Ndombe)	Bandundu	02°20'S, 16°20'E
Mbuji Mayi (Kabinda)	Kasaï Oriental	06°10'S, 23°39'E
Medje (Haut-Uele)	Prov. Orientale	02°25'N, 27°18'E
Merode-Dibaya (Lulua)	Kasaï Occidental	06°17'S, 23°13'E
Moanda (=Muanda)	Bas-Congo	05°55'S, 12°21'E
Mt Mé (Ituri)	Prov. Orientale	02°16'N, 30°57'E
Mwenga	Sud-Kivu	03°00'S, 28°28'E
Namoya	Sud-Kivu	04°01'S, 27°36'E
Ngombe Lutete	Bas-Congo	04°58'S, 14°41'E
Nkone (Tshuapa)	Equateur	01°00'N, 22°15'E
Panga (Stanleyville)	Prov. Orientale	01°52'N, 26°23'E
Rusizi delta, marshes	Sud-Kivu	*c.*03°18'S, 29°15'E
Sanghi-Rusizi	Sud-Kivu	03°04'S, 29°14'E
Umangi (Mongala)	Equateur	02°05'N, 21°27'E
Upemba NP	Katanga	*c.*09°10'S, 29°22'E
Vitshumbi, Virunga NP	Nord-Kivu	00°41'S, 29°21'E
Yangala (Equateur)	Equateur	00°08'S, 18°08'E

*District (administrative division of the province before 1961) in parentheses.
Provinces in DR Congo: Bandundu, Bas-Congo (Lower Congo), Equateur, Kasaï Occidental (West Kasaï), Kasaï Oriental (East Kasaï), Katanga (formerly Shaba), Nord-Kivu (North Kivu), Sud-Kivu (South Kivu), Maniema, Prov. Orientale (Oriental province; formerly Haut-Zaïre).
The capital Kinshasa and its immediate surroundings form a separate administrative unit.

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Notes on the breeding of north-west Ecuadorian birds

by Harold F. Greeney & Tony Nunnery

Received 26 January 2005

Whilst the work of Skutch, ffrench, the Snows, Haverschmidt, Sick and others has greatly increased our understanding of the breeding biology and seasonality of the birds of Costa Rica, Panama, Venezuela, Trinidad, Suriname, Brazil and Colombia, there remains relatively little published on the breeding of Ecuadorian birds. The work of Marchant (1959, 1960) then Best *et al.* (1993, 1996) and Rasmussen *et al.* (1996) in southern Ecuador provided a starting point, but recent papers have pointed to the dearth of information for the country as a whole (e.g. Kiff *et al.* 1989, Greeney *et al.* 2004). Though we have barely begun the monumental task of elucidating breeding patterns in Ecuador, recent studies have greatly improved our knowledge for the north-west (e.g. Marín & Carrión 1991, 1994, Freile & Renjifo 2003, Karubian *et al.* 2003, Athanas & Davis 2004, Greeney *et al.* 2004, Greeney 2005, Greeney & Wetherwax 2005).

Here we present *c.*150 observations on the breeding activity of 72 species of birds, collected over the last five years, from the Tandayapa–Mindo area of Ecuador's north-western Pichincha province. Observations were made opportunistically, and alone are not useful for assessing patterns of seasonality. In conjunction with past and future observations, however, the data presented here comprise a significant contribution to our knowledge of birds from this poorly studied area of Ecuador. We are aware that numerous breeding records are 'buried' in birdwatching trip reports, but we hope this paper encourages others to publish such valuable, and currently unavailable, information.

The majority of our observations were made between 1998 and 2004 in the Tandayapa Valley, Pichincha province, north-west of Quito. All locations are sequentially located along the road to Mindo above the small town of Tandayapa, beginning with Tandayapa Bird Lodge (00°00'N, 78°41'W), 1,300 m (TBL) just outside the town of Tandayapa; Pacha Quindi Nature Refuge and Botanical Gardens, 2,000 m (PQ); and Bellavista Lodge, 2,200 m (BV). Data collected at PQ in 1999–2004 show annual rainfall to range from 1.7 to just over 3 m (TN unpubl.). July and August are consistently the driest months, with a fairly well-defined dry season in June–November. We made additional observations in 2001–04 around the Mindo Biological Station (MBS). The station lies at 1,750 m in the Mindo Valley, and has similar weather patterns to Tandayapa. Nesting records are given in taxonomic order following Ridgely & Greenfield (2001). For many species, these data are the first presented for Ecuador, and for most others the first for the area. For brevity and simplicity, we have refrained from exhaustively reviewing the breeding literature for each species, mentioning only other Ecuadorian records or particularly

relevant works. We use the following abbreviations: (B) building, (I) incubating, (N) nestlings, (F) dependent fledglings, (AN) active nest at unknown stage, (J) juvenile-plumaged individual, and (CM) carrying nesting material but nest unseen.

Species accounts

WHITE-RUMPED HAWK *Buteo leucorrhous*
On 16 January 2000, at PQ, we observed an adult feeding a juvenile. Adults brought the young bird three small mouse-sized mammals over the course of two hours.

BARRED HAWK *Leucopternis princeps*
On 26 December 2002, at PQ, we observed an adult carrying food repeatedly to the same area of forest, where we suspect it had a nest. Three lizards were the only prey items identified. Almost nothing is known of the breeding habits of this elusive forest raptor.

DARK-BACKED WOOD-QUAIL *Odontophorus melanonotus*
At PQ, on 10 May 2000, we observed two adults with three dependent young and, on 26 May 2001, a group of four adults and three juveniles. Groups of adults and juveniles were reported at a nearby site (Freile & Chaves 2004), but no specific dates were presented and little else appears to have been published on the breeding of this poorly known species.

CLOUD-FOREST PYGMY-OWL *Glaucidium nubicola*
On 14 August 1999, at PQ, an adult was seen feeding a lizard to a recently fledged juvenile. There is apparently no published breeding account for this species, but Freile *et al.* (2003) published observations of this species from a nearby location.

PURPLE-THROATED WOODSTAR *Calliphlox mitchellii*
On 14 May 1999, at PQ, we discovered a nest saddled over an exposed bare branch, 3–4 m above ground. On 27 June, we observed the female feeding nestlings and soon afterwards fledglings. Subsequently, on 1–8 July, we observed a female adding material to the same nest. Two eggs were laid and eventually two young fledged on 23 August. The following year, the same nest was rebuilt and on 15 April 2000 we observed a female incubating two eggs. The nest failed and, on 20 April, what we believe to have been the same female began constructing a second nest 15 m above ground on an exposed branch. On 5 June 2000, only 5–6 m from the new nest, we located another nest containing a single nestling. On 6 April 2002, at PQ, a female was seen carrying nesting material repeatedly to the same area.

BROWN INCA *Coeligena wilsoni*
On 23 August 2002, at MBS, we discovered a female incubating two all-white eggs (15.1 × 9.8 mm and 14.8 × 9.8 mm). The nest was a slightly oblong mossy cup with a dense lining of balsa seed down, decorated on the outside with loose hanging

moss. It was 2 m up in the vertical fork of a small sapling within mature forest. The nest measured 7.0–7.5 cm wide × 6.5 cm tall, with a 10 cm 'tail' of hanging moss, and the cup was 3.0–3.5 cm wide and 2.5 cm deep.

SPOTTED BARBTAIL *Premnoplex brunnescens*
On 2 May 2002, at MBS, a nest with two all-white, partially incubated eggs (21.2 × 16.7 mm and 21.4 × 16.7 mm) was found along a small stream. The following day we found a second nest under construction, with two adults bringing soft pale lining material. On 25 August 2002, at MBS, we found a third nest with two all-white, well-incubated eggs (20.4 × 16.4 mm and 21.1 × 16.9 mm). On 28 January 2003, we revisited the first nest and discovered two nestlings. On this date, also at MBS, we discovered a fourth nest with two all-white eggs (21.7 × 16.0 mm and 21.1 × 15.8 mm) which showed no embryonic development. On 20 August 2003 we found the third nest to again contain two all-white eggs (20.8 × 15.8 mm and 20.7 × 15.9 mm). We discovered a fifth nest on 11 December 2003 at PQ. It contained two nestlings. These records, as well as an active nest in March–April and June at a nearby location (Marín & Carrión 1994), suggest breeding is year-round in north-west Ecuador.

GIANT ANTPITTA *Grallaria gigantea*
On 19 April 2001, at PQ, we observed an adult feeding a fledgling a large earthworm. The nest of this species remains undescribed, and this appears to be the first published breeding information for this Endangered and range-restricted species (Krabbe & Schulenberg 2003, BirdLife International 2004).

ANDEAN COCK-OF-THE-ROCK *Rupicola peruviana*
On 9 July 1999, at TBL, we observed an adult female sitting on a nest near the 'Potoo' trail. We could not observe the contents of the nest. At MBS, on 20 August 2003, we discovered an adult female feeding and brooding a single nestling below the lodge. Other nesting records from the area include a nest with older nestlings near TBL in September 1997 (Pérez & Lyons de Pérez 1998) and 15 active nests near Mindo in July 1991–February 1992 (Nicolalde 1993).

YELLOW-BELLIED CHAT-TYRANT *Ochthoeca diadema*
On 16 November 1999, at PQ, we discovered a nest with two white to cream-coloured, unmarked eggs. The nest was a mossy ball lined with feathers, 1.5 m up on the side of a moss-covered tree.

GREY-BREASTED WOOD-WREN
We found nests, each with two nestlings, on 2 June 2001 at PQ and 27 January 2003 at MBS. On 29 January 2003 at MBS we found a nest with two incubated, all-white eggs (20.0 × 14.3 mm and 20.4 × 14.3 mm). The nest was 1.4 m up, in a regrowing pasture. We found a second nest with eggs at TBL on 6 December 2003. The nest

was along the road, 3 m up, and contained two all-white, partially incubated eggs (19.3 × 14.0 mm and 18.9 × 14.1 mm). Additionally, on 8 September 2002, at PQ, we saw an adult with begging juveniles. These dates suggest breeding in the dry season, extending into the wet, and possibly year-round.

BLACK-CAPPED TANAGER *Tangara heinei*
On 7 December 2003, near TBL, we discovered a nest containing two eggs (20.9 × 15.7 mm and 20.5 × 15.2 mm). The nest was 1 m above ground and well supported in the vertical fork of an isolated *Tibouchina* sp. (Melastomataceae) sapling, surrounded by pasture. On the same day, at PQ, we found a second nest located 5 m above ground in the vertical fork of an isolated tree (Urticaceae). At 0900 h an adult female arrived and fed one nestling a small red berry, then settled onto the nest to brood. On 13 December 2003, at TBL, we discovered a third nest containing two eggs (21.5 × 15.1 mm and 19.7 × 15.4 mm). The nest was located 1.5 m up in a small shrub (Asteraceae), saddled over a thin horizontal branch. All of the eggs were pale blue to blue-green with sparse red-brown spotting. Nests were neat mossy cups lined with dark and pale fibres, and decorated on the outside with spider webs and lichens. We observed only females incubating. Hilty & Brown (1986) reported a clutch size of one in Colombia, nests 2–3 m above ground and breeding activity nearly year-round. Ewert (1975) reported a nest under construction in Venezuela in May, but ours appear to be the first breeding reports for Ecuador.

BLACK-WINGED SALTATOR *Saltator atripennis*
On 15 February 2001 and 17 February 2002 we observed adults carrying nesting material at PQ. On 11 December 2003 we discovered a nest, 80 cm above ground, supported by pasture grass and containing two nestlings. The nestlings' tarsi measured 23.0 mm and 22.7 mm respectively.

TANAGER FINCH *Oreothraupis arremenops*
On 4 June 2000, at BV, a single fledgling was seen following and begging from a pair of adults. The only breeding information available for this rare species is the description of a single nest in November, found at BV (Greeney *et al.* 1998).

RUFOUS-COLLARED SPARROW *Zonotrichia capensis*
At PQ, we found nests under construction in May 2000 and April 2003. We observed a nest with two incubated eggs on 11 December 2003. The eggs were pale blue with red-brown flecking and measured 19.5 × 15.2 mm and 20.4 × 15.3 mm respectively.

In addition, we recorded the following information: **Swallow-tailed Kite** *Elanoides forficatus*, 13 May 2001 PQ (CM); **Double-toothed Kite** *Harpagus bidentatus*, 29 March 1999 BV (CM, carrying moss); **Plumbeous Pigeon** *Columba plumbea*, 7 December 2003 PQ (B); **Green-fronted Lancebill** *Doryfera ludovicae*,

8 June 1999 PQ (I), 28 January 2003 MBS (N, near fledging); **Green Violetear** *Colibri thalassinus*, 7 June 1999 PQ (I, clutch two), 16 June 2000 PQ (I, nest 1 m up, saddled on *Chusquea* bamboo); **Western Emerald** *Chlorostilbon melanorhynchus*, 6 April 2000 PQ (CM, gathering seed down), 8 October 2000 PQ (N, nest 2 m up), 26 October 2000 PQ (B); **Fawn-breasted Brilliant** *Heliodoxa rubinoides*, 26 April 2000 PQ (CM, gathering tree fern scales); **Collared Inca** *Coeligena torquata*, 23 March 2000 PQ (AN, nest 3 m up on *Chusquea* bamboo tip); **Buff-tailed Coronet** *Boissonneaua flavescens*, 26 June 1998 BV (I); **Booted Racket-tail** *Ocreatus underwoodii*, 12 June 2000 PQ (B, just commencing construction); **Masked Trogon** *Trogon personatus*, 28 July 2000 PQ (F); **Plate-billed Mountain-toucan** *Andigena laminirostris*, 9 August 2001 PQ (AN), 3 September 2002 PQ (AN); **Crimson-mantled Woodpecker** *Piculus rivolii*, 17 August 2002 PQ (F); **Yellow-vented Woodpecker** *Veniliornis dignus*, 4 September 2002 PQ (F); **Azara's Spinetail** *Synallaxis azarae*, 1 April 1999 BV (B), 12 May 2000 PQ (B), 30 November 2001 PQ (B), 10 May 2003 PQ (B), 7 December 2003 PQ (B); **Lineated Foliage-gleaner** *Syndactyla subalaris*, 12 August 1999 PQ (B), 6 December 2000 PQ (F); **Striped Treehunter** *Thripadectes holostictus*, 14 April 2000 PQ (B, excavating tunnel), 14 April 2002 PQ (AN); **Streak-capped Treehunter** *Thripadectes virgaticeps*, 14 October 2001 PQ (N); **Montane Woodcreeper** *Lepidocolaptes lacrymiger*, 7 October 1998 BV (N); **Spillmann's Tapaculo** *Scytalopus spillmanni*, 10 August 1999 PQ (F); **Smoke-coloured Pewee** *Contopus fumigatus*, 6 May 2001 PQ (CM); **Black Phoebe** *Sayornis nigricans*, 24 September 2003 Mindo (B); **Golden-crowned Flycatcher** *Myiodynastes chrysocephalus*, 5 March 1998 BV (CM), 25 April 1999 BV (CM), 12 May 1999 PQ (B), 2 June 1999 PQ (I, clutch three), 27 April 2000 PQ (B, 15 m up); **Barred Becard** *Pachyramphus versicolor*, 23 August 2003 MBS (B, both sexes building, 8 m up); **Green-and-black Fruiteater** *Pipreola riefferii*, 12 August 1999 PQ (F), early-October 2000 PQ (B), 8 September 2002 PQ (AN); **Turquoise Jay** *Cyanolyca turcosa*, May 1998 (B), June 1999 BV (N); **Beautiful Jay** *Cyanolyca pulchra*, 14 August 1999 PQ (AN); **Blue-and-white Swallow** *Notiochelidon cyanoleuca*, 17 April 2002 PQ (AN), 1 August 2003 PQ (AN), 7 December 2003 PQ (N); **Southern Rough-winged Swallow** *Stelgidopteryx ruficollis*, 6 December 2003 TBL (B); **Mountain Wren** *Troglodytes solstitialis*, 3 April 1998 BV (F); **Tropical Parula** *Parula pitiayumi*, June 1999 PQ (B); **Slate-throated Whitestart** *Myioborus miniatus*, 16 May 1998 BV (B), 1 September 1998 PQ (I, clutch two, in bank on ground), 27 February 2002 PQ (AN, in bank on ground), 24 September 2003 MBS (I, clutch two, in bank on ground), 6 December 2003 TBL (N, two older nestlings); **Spectacled Whitestart** *Myioborus melanocephalus*, 25 June 1998 BV (CM); **Three-striped Warbler** *Basileuterus tristriatus*, 5 September 1998 PQ (F); **Russet-crowned Warbler** *Basileuterus coronatus*, April 1998 BV (F), 18 April 2002 PQ (AN), 10 May 2003 PQ (F); **White-sided Flowerpiercer** *Diglossa albilatera*, 27 March 2000 PQ (B), 13 March 2001 PQ (F); **Thick-billed Euphonia** *Euphonia laniirostris*, 6 October 2003 PQ (B,

both sexes building, lining of *Chusquea* bamboo leaves), 7 December 2003 PQ (I); **Golden-rumped Euphonia** *Euphonia cyanocephala*, November 1998 PQ (AN), May 1999 PQ (B), June 1999 PQ (B, both sexes building), 10 December 2002 PQ (B, both sexes building, predated by Plate-billed Mountain-toucan), 24 December 2002 PQ (B, re-nesting of previous pair); **Golden Tanager** *Tangara arthus*, 18 August 1999 PQ (F), 28 February 2000 PQ (B); **Silver-throated Tanager** *Tangara icterocephala*, 8 April 2000 PQ (J); **Flame-faced Tanager** *Tangara parzudakii*, 18 October 2000 PQ (B), 1 August 2001 PQ (B), 13 December 2002 PQ (CM); **Metallic-green Tanager** *Tangara labradorides*, 17 April 1998 BV (F); **Beryl-spangled Tanager** *Tangara nigroviridis*, June 1999 PQ (B); **Scarlet-bellied Mountain-tanager** *Anisognathus igniventris*, 27 June 1998 BV (J); **Blue-winged Mountain-tanager** *Anisognathus somptuosus*, April 1998 BV (F), 23 April 1999 PQ (B, 5 m up); **Grass-green Tanager** *Chlorornis riefferii*, 27 June 1998 BV (J), 14 May 1999 PQ (CM); **Blue-capped Tanager** *Thraupis cyanocephala*, 18 August 1999 PQ (F), 22 August 1999 PQ (CM), 10 June 2000 PQ (CM), 22 August 2000 PQ (F, adult feeding flower petals to fledgling), 15 February 2001 PQ (CM), 18 January 2002 PQ (CM), 15 August 2002 PQ (CM, breaking dead twigs from *Baccharis* (Asteraceae) shrub), 1 April 2003 PQ (AN), 24 September 2003 PQ (B); **Lemon-rumped Tanager** *Ramphocelus icteronotus*, 24 August 2003 MBS (B); **Dusky Bush-tanager** *Chlorospingus semifuscus*, 22 November 2001 PQ (CM); **Plushcap** *Catamblyrhynchus diadema*, 21 August 1999 PQ (J); **Blue-black Grassquit** *Volatinia jacarina*, 18 August 1999 PQ (F); **Yellow-bellied Seedeater** *Sporophila nigricollis*, 3 April 1999 PQ (F), 19 August 1999 PQ (F), 16 May 2001 PQ (I, clutch two, 1.2 m up), 27 February 2002 PQ (CM), 26 May 2002 PQ (N, male feeding nestlings); **Tricoloured Brush-finch** *Atlapetes tricolor*, 22 February 2000 PQ (F); **White-winged Brush-finch** *Atlapetes leucopterus*, 1 November 1998 PQ (CM), 28 May 2001 PQ (F), 15 May 2003 PQ (F); **Chestnut-capped Brush-finch** *Buarremon brunneinucha*, 9 November 1998 PQ (F), 2 September 1999 PQ (F); **Russet-backed Oropendola** *Psarocolius angustifrons*, February 1999 BV (F, adult feeding Giant Cowbird *Molothrus oryzivorus* fledgling), December 2001 PQ (F, adult feeding Giant Cowbird fledgling).

Whilst these few data are insufficient alone to understand seasonality, for a few species at least (e.g. Spotted Barbtail, Grey-breasted Wood-wren, Azara's Spinetail, Blue-capped Tanager), it appears that nesting probably occurs year-round. Others appear to be more seasonal (e.g. Yellow-bellied Seedeater). Within larger taxonomic groups (e.g. hummingbirds), we also begin to see some patterns: in this case, a preference for the end of the wet season and extending well into the drier months. We hope this note encourages others to contribute their observations on the breeding of Ecuadorian birds.

Acknowledgements

For logistical support and hospitality we thank Richard Parsons, Iain Campbell, Mariela Tenorio, Tom Quesenbury, Doña Esperanza & Don Miguel Falero, Tom Walla, Lori & Juan M. Espinosa, Rudy Gelis and Peter Wetherwax. John V. & the late Ruth Ann Moore have generously supported HFG through

grants to the Population Biology Foundation. Field work by HFG was supported in part by a Rufford Award from the Whitley-Lang Foundation, and the Hertzberg Family Foundation. We are thankful for the ongoing support of the PBNHS of our natural history interests. This is publication no. 45 of the Yanayacu Natural History Research Group.

References:

Athanas, N. & Davis, J. 2004. Breeding biology of the White-faced Nunbird *Hapaloptila castanea* in Ecuador. *Cotinga* 22: 42–45.

Best, B. J., Checker, M., Thewlis, R. M., Broom, A. L & Duckworth, W. 1996. New bird breeding data from southwestern Ecuador. *Orn. Neotrop.* 7: 69–73.

Best, B. J., Clarke, C. T., Checker, M., Broom, A. L., Thewlis, R. M., Duckworth, W. & McNab, A. 1993. Distributional records, natural history notes, and conservation of some poorly known birds from southwestern Ecuador and northwestern Peru. *Bull. Brit. Orn. Cl.* 113: 108–119, 234–255.

BirdLife International. 2004. *Threatened birds of the world 2004*. CD-ROM. BirdLife International, Cambridge, UK.

Ewert, D. 1975. Notes on nests of four avian species from the Coastal Cordillera of Venezuela. *Wilson Bull.* 87: 105–106.

Freile, J. F. & Chaves, J. A. 2004. Interesting distributional records and notes on the biology of bird species from a cloud forest reserve in north-west Ecuador. *Bull. Brit. Orn. Cl.* 124: 6–16.

Freile, J. F., Chaves, J. A., Iturralde, G. & Guevara, E. 2003. Notes on the distribution, habitat and conservation of the Cloud-Forest Pygmy-Owl (*Glaucidium nubicola*) in Ecuador. *Orn. Neotrop.* 14: 275–278.

Freile, J. F. & Renjifo, L. M. 2003. First nesting records of the Moustached Antpitta (*Grallaria alleni*). *Wilson Bull.* 115: 11–15.

Greeney, H. F. 2005. The nest, eggs and incubation behaviour of Sickle-winged Guan *Chamaepetes goudotii fagani* in western Ecuador. *Bull. Brit. Orn. Cl.* 125: 113–116.

Greeney, H. F., Gelis, R. A. & White, R. 2004. Notes on breeding birds from an Ecuadorian lowland forest. *Bull. Br. Orn. Cl.* 124: 28–37.

Greeney, H. F., Lysinger, M., Walla, T. R. & Clark, J. 1998. First description of the nest and egg of the Tanager Finch (*Oreothraupis arremenops*) with additional notes on behavior. *Orn. Neotrop.* 9: 205–207.

Greeney, H. F., Port, J. & Werner, F. 2004. First description of the nest of the Barred Puffbird (*Nystalus radiatus*) from north-western Ecuador. *Orn. Neotrop.* 15: 285–288.

Greeney, H. F. & Wetherwax, P. B. 2005. Brooding behaviour and nestling growth of the Lyre-tailed Nightjar *Uropsalis lyra*. *Cotinga* 23: 44–47.

Hilty, S. L. & Brown, W. L. 1986. *A guide to the birds of Colombia.* Princeton Univ. Press.

Karubian, J., Castañeda, G., Freile, J. F., Salazar, R. T., Santander, T. & Smith, T. B. 2003. Nesting biology of a female Long-wattled Umbrellabird *Cephalopterus penduliger* in north-western Ecuador. *Bird Conserv. Intern.* 13: 351–360.

Kiff, L. F., Marin A., M., Sibley, F. C., Matheus, J. C. & Schmitt, N. J. 1989. Notes on the nests and eggs of some Ecuadorian birds. *Bull. Br. Orn. Cl.* 109: 25–31.

Krabbe, N. & Schulenberg, T. S. 2003. Family Formicariidae (ground-antbirds). Pp. 682–731 *in* del Hoyo, J., Elliott, A. & Christie, D. A. (eds.) *Handbook of the birds of the world*, vol. 8. Lynx Edicions, Barcelona.

Marchant, S. 1959. The breeding season in S. W. Ecuador. *Ibis* 101: 137–187.

Marchant, S. 1960. The breeding of some southwestern Ecuadorian birds. *Ibis* 102: 349–382, 584–599.

Marín, M. & Carrión B., J. M. 1991. Nests and eggs of some Ecuadorian birds. *Orn. Neotrop.* 2: 44–46.

Marín, M. & Carrión B., J. M. 1994. Additional notes on nests and eggs of some Ecuadorian birds. *Orn. Neotrop.* 5: 121–124.

Nicolalde, R. M. 1993. Acerca del cortejo, la anidación y la dieta del Gallo de la Peña, *Rupicola peruviana sanguinolenta*, en el bosque nublado de Mindo, Ecuador. Thesis. Pontifica Univ. Católica del Ecuador, Quito.

Pérez, V. & Lyons de Pérez, J. A. 1998. Andean Cock-of-the-Rock *Rupicola peruviana* nest under a bridge. *Cotinga* 9: 81–82.

Rasmussen, J. F., Rahbek, C., Poulsen, B. O., Poulsen, M. K. & Bloch, H. 1996. Distributional records and natural history notes on threatened and little known birds of southern Ecuador. *Bull. Brit. Orn. Cl.* 116: 26–45.

Ridgely, R. S. & Greenfield, P. J. 2001. *The birds of Ecuador*. Cornell Univ. Press, Ithaca, NY.

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The occurrence of *Sporophila hypochroma* and *S. hypoxantha* in Uruguay

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Received 27 January 2005; revision accepted 16 November 2005

Tawny-bellied Seedeater *Sporophila hypoxantha* and Rufous-rumped Seedeater *S. hypochroma* occur seasonally over much of south-central South America in marshes, flooded grasslands and savanna-like habitats (Ridgely & Tudor 1989, Silva 1999). Whereas *S. hypoxantha* is considered the commonest small seedeater in the region (Ridgely & Tudor 1989), *S. hypochroma* is poorly known and currently treated as globally Near Threatened (BirdLife International 2004). Females and juveniles of both species are indistinguishable, and males are very similar, differing only in the intensity of the rufous coloration on the underparts and rump (Short 1969, Ridgely & Tudor 1989). *S. hypochroma* has not previously been reported in Uruguay, where *S. hypoxantha* is an uncommon summer resident (Azpiroz 2001). Here we report the first records of *S. hypochroma* for Uruguay that form the basis for its inclusion in Rocha (2003) and Claramunt & Cuello (2004). We also evaluate the status of *S. hypoxantha* and conclude that it may be regarded as hypothetical in Uruguay.

SC examined specimens of *Sporophila* in the bird collections of the Museo Nacional de Historia Natural y Antropología (MNHN) and the Facultad de Ciencias, Universidad de la República (ZVC-A), both in Montevideo, Uruguay. Specimens were also compared with representative samples of *S. hypochroma* and *S. hypoxantha* in the Museo Argentino de Ciencias Naturales 'Bernardino Rivadavia', Buenos Aires. During the austral summer of 2002–03, SC and GR surveyed threatened grassland birds in central-west Uruguay during which period they photographed and tape-recorded many seedeaters (Rocha & Claramunt 2003). In January 2003, SC and JA collected birds for MNHN in the departments of Río Negro and Paysandú, during which seedeater specimens were prepared as study skins, and tissue samples, crops and stomachs were preserved in 95% ethanol.

Species accounts

Sporophila hypoxantha

Cabanis (1851) described *S. hypoxantha* based on a specimen from Montevideo. Hellmayr (1938) considered the locality erroneous and suggested Brazil, but proffered no evidence to support his assertion, and subsequent authors have maintained the original locality. The type specimen, purportedly housed in Berlin, has since disappeared from there. It may have been destroyed during World War II or transferred to another museum, but as Hellmayr did not include the type specimen among those he examined, this suggests that it has been missing since the early 20th century at least (he examined other *Sporophila* types in Berlin).

In the Museum Heineanum (Halberstadt) there is a specimen of *S. hypoxantha* (no. 3619) from Montevideo (Fig. 1). The specimen is apparently not the missing type specimen because it came directly from Schaufuss, a natural history dealer, and was received by Ferdinand Heine between 1851 and 1883 (B. Nicolai *in litt.* 2003, 2004). Although worn, the plumage of the specimen is characteristic of an adult male *S. hypoxantha* in definitive plumage.

Subsequently, Gibson (1885) collected a *S. hypoxantha* in dpto. Paysandú, on 11 November 1883. Considering that *S. hypochroma* had yet to be described, the identification of this specimen should be checked. Unfortunately, its whereabouts are unknown.

Following almost a century without records, Vaz-Ferreira *et al.* (1981) reported the rediscovery of *S. hypoxantha* in Uruguay based on a specimen and sight records in dpto. Artigas. However, as detailed below, the specimen was misidentified, thus also invalidating the sight records.

Finally, the only modern reference to the occurrence of *S. hypoxantha* in Uruguay is a small-image photograph deposited at MNHN, taken by Enrique Gómez-Haedo near Conchillas, dpto. Colonia, in December 1995 (Fig. 2). The photograph depicts a seedeater and two Bay-winged Cowbirds *Molothrus badius* on a large stone used as a feeder. The crown, nape and back of the seedeater are bluish grey, as in definitive-plumaged males. The underparts are tawny rufous. If the colours are accurate, the combination of these two features indicates a definitive-plumaged male *S. hypoxantha*; the colour of the dorsal parts eliminates a subadult *S. hypochroma*.

Sporophila hypochroma

The specimen ZVC-A 1067, reported by Vaz-Ferreira *et al.* (1981) as *S. minuta hypoxantha* is, in fact, a definitive-plumaged male *S. hypochroma*. The crown, hindneck and back are deep bluish grey, and the underparts chestnut, similar in intensity to those of *S. cinnamomea*, rather than the more tawny underparts of *S. hypoxantha*. The specimen was collected, on 28 January 1981, at Arrocera Conti (= 'establecimiento San Pedro', 30°33'S, 57°52'W), 39 km south-west of Bella Unión, dpto. Artigas.

Figure 1. Specimen of *Sporophila hypoxantha* from Montevideo (no. 3619) in the Museum Heineanum, Halberstadt, Germany (Bernd Nicolai)

Figure 2. *Sporophila hypoxantha* near Conchillas, dpto. Colonia, Uruguay, December 1995 (Enrique Gómez-Haedo)

On 29 December 2002, we tape-recorded and photographed a male *S. hypochroma* at a small meadow 6 km north-west of Lorenzo Geyres, dpto. Paysandú (32°03'S, 57°58'W). One male *S. cinnamomea*, two unidentified female seedeaters, and a singing male Dark-throated Seedeater *S. ruficollis* were also present. On 24 January 2003, a male *S. hypochroma* was collected near a bridge over Agesta stream, 3 km west-northwest of Lorenzo Geyres (32°04'S, 57°57'W). Both *S. cinnamomea* and *S. ruficollis* were also present. The specimen, MNHN 6109, is a definitive-plumaged male *S. hypochroma* similar to ZVC-A 1067. It had enlarged and vascularised testes (6.9 x 5.5 mm) and a pronounced cloacal protuberance, indicating that the bird was in full breeding condition.

Discussion

Historical evidence suggests the occurrence of *S. hypoxantha* in Uruguay during the 19th century, but evidence for its occurrence in the 20th century is scarcer. We were unable to locate any modern specimen and, excluding the unreliable reports of Vaz-Ferreira *et al.* (1981), there are no published 20th-century records from Uruguay. The only evidence for the species' recent occurrence is the photograph mentioned above. *S. hypoxantha* may prove to be rare or occasional along the Uruguay River, but in the absence of recent documentation the species should currently be considered hypothetical in Uruguay.

However, we found concrete evidence of the occurrence of *S. hypochroma* in Uruguay, which was unknown from the Mesopotamian grasslands until 1967, when a specimen was collected in Corrientes, Argentina (Short 1969). Subsequently, the species was recorded farther south, in the provinces of Entre Ríos and Buenos Aires. That it was unrecorded until 1981 in Uruguay is consistent with the notion that *S. hypochroma* is expanding its range, although it is also possible that the species has been overlooked.

The presence of *S. hypochroma* in western Uruguay further highlights the importance of the region for the conservation of *Sporophila* seedeaters. This area holds at least three other globally threatened and one Near-Threatened *Sporophila*. Although unrecorded in Uruguay prior to 1989, the Vulnerable *S. cinnamomea* is fairly common in parts of Río Negro and Paysandú (Azpiroz 2001, Rocha & Claramunt 2003). The Critically Endangered Entre Ríos Seedeater *S. zelichi*, recently discovered in south-east Uruguay (Azpiroz 2003), also occurs in western Uruguay (Venzal & Stagi 2001, Azpiroz 2003). The Near-Threatened *S. ruficollis* is also relatively common and widespread in the west of the country (Azpiroz 2001, Venzal & Stagi 2001). Furthermore, there are both old (Vaz-Ferreira & Gerzenstein 1961) and recent (Rocha & Claramunt 2003) records of the Endangered Marsh Seedeater *S. palustris*. Thus, although not included by Silva (1999) as a priority area, western Uruguay harbours, at least occasionally, as many as five seedeater species of conservation concern, and is among the most important areas for threatened seedeaters in the continent.

Acknowledgements

Surveys of threatened grassland birds in Uruguay during the austral summer of 2002–03 were funded by Aves Argentinas, as part of the project 'Threatened migratory grassland birds in Argentina', supported by the Convention on Migratory Species (CMS). Collecting permits were issued to SC by the Dirección de Recursos Natuales Renovables, Ministerio de Ganadería Agricultura y Pesca of the Uruguayan government. We are indebted to Juan José Culasso and Juan Pablo Culasso for their invaluable assistance during field work. IdeaWild generously provided sound-recording equipment. We thank Federico Achaval and Mario Clara for granting access to the bird collection at the Facultad de Ciencias. For information concerning specimens in Europe we thank Mark Adams of The Natural History Museum (Tring), Sylke Frahnert and Frank Steinheimer at the Museum für Naturkunde (Berlin), Guy Kirwan, and especially Dr Bernd Nicolai at Museum Heineanum (Halberstadt). We thank Juan Cuello, Juan Mazar Barnett, Adrián Azpiroz and Rob Clay for comments on the manuscript, and Daniel F. Lane for assisting with German translations.

References:

Azpiroz, A. B. 2001. *Aves del Uruguay. Lista e introducción a su biología y conservación*. Aves Uruguay, Montevideo.

Azpiroz, A. B. 2003. Primeros registros del Capuchino de Collar (*Sporophila zelichi*) en Uruguay. *Orn. Neotrop.* 14: 117–119.

BirdLife International. 2004. *Threatened birds of the world 2004*. CD-ROM. BirdLife International, Cambridge, UK.

Cabanis, J. 1851. *Museum Heineanum. 1. Singvögel*. Halberstadt.

Claramunt, S. & Cuello, J. P. 2004. Diversidad de la biota uruguaya. Aves. *An. Mus. Hist. Nat. y Antropología* 10(6): 1–76.

Hellmayr, C. E. 1938. Catalogue of birds of the Americas, part XI. *Field Mus. Nat. Hist. Zool. Ser.* 13(11): i–vi, 1–662.

Ridgely, R. S. & Tudor, G. 1989. *The birds of South America*, vol. 1. Univ. of Texas Press, Austin.

Rocha, G. 2003. *Aves del Uruguay. El país de los pájaros pintados*. Banda Oriental, Montevideo.

Rocha, G. & Claramunt, S. 2003. Grassland surveys find threatened species. *World Birdwatch* 25(2): 2.

Short, L. L. 1969. Relationships among some South American seedeaters (*Sporophila*), with a record of *S. hypochroma* for Argentina. *Wilson Bull.* 81: 216–219.

Sick, H. 1997. *Ornitologia brasileira*. Ed. Nova Fronteira, Rio de Janeiro.

Silva, J. M. C. 1999. Movements and conservation of seedeaters of the genus *Sporophila* in South America. *Stud. Avian Biol.* 19: 272–280.

Venzal, J. M. & Stagi, A. 2001. Estatus y conservación de la avifauna del Uruguay. *Achará* 5: 17–21.

Vaz-Ferreira, R. & Gerzenstein, E. 1961. Aves nuevas o poco conocidas de la República Oriental del Uruguay. *Com. Zool. Mus. Hist. Nat. Montevideo* 5: 1–73.

Vaz-Ferreira, R., Palerm, E., Achaval, F., Gepp, A., González, J. & Huertas, M. 1981. Notas sobre algunas aves del área de Salto Grande (margen uruguaya). *Res. y Com. Jornadas Cienc. Nat.* 2: 41–42.

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The seasonal movements of southern populations of Dull-coloured Grassquit *Tiaris obscura obscura*

by John M. Bates

Received 2 March 2005

Whittaker & Carlos (2004) presented new sight records of Dull-coloured Grassquit *Tiaris obscura obscura* in Mato Grosso, Brazil. These provide important additional evidence that this species occurs, more regularly than realised previously, in the general region bordering the Pantanal. The authors interpreted their observations as evidence that nominate *obscura* is 'an austral migrant to south-west Brazil', and that this is consistent with an earlier suggestion by Bates (1997). In fact, Bates (1997) proposed that nominate *obscura* is a migrant from the Andes into the lowlands, with movements in an west/east rather than south/north direction. Such a pattern would not constitute austral migration, which has been defined as the seasonal movement of populations latitudinally (Chesser 1994). Here, I review in greater detail the evidence for elevational migration in *T. o. obscura* and suggest that such movements may occur in other species. Documenting such movements will require year-round censuses or sampling at localities, which is still rarely accomplished along the Andes.

Bates (1997) examined 38 specimens of *T. o. obscura*, the southernmost populations of Dull-coloured Grassquit, a species that occurs primarily in the Andes from Venezuela to northern Argentina. Specimens from sites in the Bolivian and northern Argentine Andes (generally above 800 m, *N*=4 males, 11 females, 1 unknown) have been collected in January–February. These include specimens in breeding condition. In contrast, all specimens (12 males, 9 females, 1 unknown) from eastern Bolivia (below 800 m), western Brazil, Paraguay and northern Argentina are from May–October, the austral winter. None of these specimens that have accompanying information on gonadal development are in breeding condition (e.g. Davis 1993). Other records are consistent with this pattern. Sight records from Paraguay (Bates 1997) and those of Whittaker & Carlos (2004) are also from the austral winter (their 8 March date is notably early). Schmitt *et al.* (1997) recorded the species as common (and collected birds in breeding condition) in January–February at Tambo (1,500 m), in the Andean foothills of Santa Cruz, Bolivia, but found *obscura* absent at this locality in June–July. Within *T. obscura*, this pattern of movement appears restricted to *T. o. obscura*, as specimens representing populations from a spectrum of elevations in northern Bolivia, Peru and Ecuador (all representative of populations north of *T. o. obscura*) did not show any clear pattern of annual movements, austral or elevational (Bates 1997).

Austral migration has been long recognised and recently this pattern has received much attention from ornithologists (e.g., Marantz & Remsen 1991,

Chesser 1994, 1997, Joseph 1996, 1997, Joseph *et al.* 2003). Some austral migrants do breed at higher elevations and migrate in the non-breeding season to lowlands (Chesser 1997, 2005). For example, Chesser (1997) documented seasonal differences in the elevations of three austral migrant flycatchers in Bolivia (*Phaeomyias murina*, *Pseudocolopteryx acutipennis* and *Myiophobus fasciatus*). However, elevational migration without an apparent latitudinal component appears to be rarely reported from Andean countries, in contrast to Middle America where elevational movements are well documented (e.g. Binford 1989, Loiselle & Blake 1991), and it has been suggested that these might be an evolutionary precursor to latitudinal migration (Levey & Stiles 1992). As mentioned earlier, such movements could be more widespread in the Andes than currently realised, and the lack of documentation reflects a paucity of localities monitored on a year-round basis. For example, Schmitt *et al.* (1997) found that several other species (e.g. *Phaethornis pretrei* and *Thraupis bonariensis*) exhibited marked changes in abundance between the breeding (austral summer) and non-breeding (austral winter) seasons. Further north, some *Sporophila* seedeaters may migrate from the Andes to Amazonia, as suggested for *S. luctuosa* by Ridgely & Greenfield (2001), which also may account for February records in Acre, Brazil (Whittaker & Oren 1999). Researchers working in these regions should be aware of the possibility that such movements may occur in other species and other Andean regions.

Acknowledgements

R. T. Chesser, J. V. Remsen, T. Schulenberg and D. Willard commented on the manuscript. The specimens examined came from the American Museum of Natural History (New York), National Museum of Natural History (Washington DC), Carnegie Museum of Natural History (Pittsburgh), Field Museum of Natural History (Chicago) and Louisiana State University Museum of Natural Science (Baton Rouge). I thank the curators and collection managers of these collections for access to material in their care.

References:

Bates, J. M. 1997. Distribution and geographic variation in three South American grassquits (Emberizinae, *Tiaris*). Pp. 91–110 *in* Remsen, J. V. (ed.) *Studies in Neotropical ornithology honoring Ted Parker*. Orn. Monogr. 48.

Binford, L. C. 1989. *A distributional survey of the birds of the Mexican state of Oaxaca*. Orn. Monogr. 43.

Chesser, R. T. 1994. Migration in South America: an overview of the austral system. *Bird Conserv. Intern.* 4: 91–107.

Chesser, R. T. 1997. Patterns of seasonal and geographical distribution of austral migrant flycatchers (Tyrannidae) in Bolivia. Pp. 171–204 *in* Remsen, J. V. (ed.) *Studies in Neotropical ornithology honoring Ted Parker*. Orn. Monogr. 48.

Chesser, R. T. 2005. Seasonal distribution and ecology of South American austral migrant flycatchers. Pp. 168–181 *in* Greenberg, R. & Marra, P. P. (eds.) *Birds of two worlds: the ecology and evolution of migration*. Johns Hopkins Univ. Press, Baltimore.

Davis, S. E. 1993. Seasonal status, relative abundance, and behavior of the birds of Concepción, Departamento Santa Cruz, Bolivia. *Fieldiana, Zool.* 71.

Joseph, L. 1996. Preliminary climatic overview of migration patterns is South American migrant passerines. *Ecotropica* 2: 185–193.

Joseph, L. 1997. Towards a broader view of Neotropical migrants: consequences of a re-examination of austral migration. *Orn. Neotrop.* 8: 31–36.

Joseph, L. Wilke, T. & Alpers, D. 2003. Independent evolution of migration on the South American landscape in a long-distance temperate-tropical migratory bird, Swainson's Flycatcher (*Myiarchus swainsoni*). *J. Biogeogr.* 30: 925–937.

Levey, D. J. & Stiles, F. G. 1992. Evolutionary precursors of long distance migration: resource availability and movement patterns of Neotropical landbirds. *Amer. Nat.* 140: 447–476.

Louiselle, B. A. & Blake, J. G. 1991. Temporal variation in birds and fruits along an elevational gradient in Costa Rica. *Ecology* 72: 180–193.

Marantz, C. A. & Remsen, J. V. 1991. Seasonal distribution of the Slaty Elaenia (*Elaenia strepera*), a little-known austral migrant of South America. *J. Field Orn.* 62: 162–172.

Ridgely, R. S. & Greenfield, P. J. 2001. *The birds of Ecuador*. Cornell Univ. Press, Ithaca. NY.

Schmitt, C. G., Schmitt, D. C. & Remsen, J. V. 1997. Birds of the Tambo area, an arid valley in the Bolivian Andes. Pp. 701–716 *in* Remsen, J. V. (ed.) *Studies in Neotropical ornithology honoring Ted Parker*. Orn. Monogr. 48.

Whittaker, A. & Oren, D. C. 1999. Important ornithological records from the Rio Juruá, western Amazonia, including 12 additions to the Brazilian avifauna. *Bull. Br. Orn. Cl.* 119: 235–260.

Whittaker, A. & Carlos. B. 2004. Recent observations of Dull-coloured Grassquit *Tiaris obscura* in Mato Grosso reinforce its status as an austral migrant to south-west Brazil. *Bull. Brit. Orn. Cl.* 124: 285–286.

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Great-winged Petrel *Pterodroma macroptera* in Brazil

by Leandro Bugoni

Received 14 March 2005

Great-winged Petrel *Pterodroma macroptera* has a near-circumpolar distribution in temperate waters of the Southern Hemisphere (Harrison 1983, Marchant & Higgins 1990). Its population is *c.*420,000 individuals (BirdLife International 2004), with *P. m. macroptera* breeding on Tristan da Cunha, Gough, Crozet, Marion, Prince Edward and Kerguelen islands, and off south-west Australia; and Grey-faced Petrel *P. m. gouldi* on mainland cliffs and offshore islands of North Island, New Zealand (Harrison 1983, Marchant & Higgins 1990). Tristan da Cunha birds appear to migrate to African waters for the non-breeding period, where Camphuysen & van der Meer (2000) found the species to be one of the most numerous off the Namibian shelf, in February 2000. The continental shelf of South America was not mentioned as being part of the species' non-breeding range (Harrison 1983), but there are scattered records for the Argentine Economic Exclusive Zone, the Falklands and South Georgia (see Mazar Barnett & Pearman 2001).

Figure 1. Specimen of Great-winged Petrel *Pterodroma macroptera* from southern Brazil, photographed prior to taxidermy (Leandro Bugoni)

The species was previously listed for Uruguay (Cuello 1975) and Brazil (Pinto 1938), but these records have subsequently been proven to be in error. Two specimens in the Museu de Zoologia, Universidade de São Paulo (MZUSP 11118, 13003) mentioned by Pinto (1938) proved to be Sooty Shearwaters *Puffinus griseus* (Escalante 1980, Teixeira *et al.* 1985), as I have also subsequently confirmed. The only other known records in Brazilian waters were the undocumented reports of Harris & Hansen (1974), who reported three between 20°S, 39°W and 24°S, 42°W on 11 September 1973, off Espírito Santo and Rio de Janeiro states, and three more at 30°S, 49°W, off Rio Grande do Sul, on 30 September 1973. The Uruguayan record in Cuello (1975), a specimen at the Museo Nacional de Historia Natural de Montevideo (MNHN 04142), in fact refers to Kerguelen Petrel *Lugensa* (*Pterodroma*) *brevirostris* (Escalante 1980).

Here a specimen from the Brazilian coast is reported, the first documented record for the south-west Atlantic north of Argentina. A female was found stranded on the beach near Albardão lighthouse, Rio Grande do Sul (33°09'S, 52°39'W), on 20 March 2004 (Fundação Universidade Federal do Rio Grande bird collection 360). The specimen was identified as Great-winged Petrel, it being medium-sized, with a stubby, hook-tipped black bill and entirely blackish-brown plumage (Fig. 1). The identification was confirmed from measurements, which are within the range of

the species according to Serventy *et al.* (1971) and Marchant & Higgins (1990), and are consistently larger than those of other gadfly petrels with similar plumage that are suspected to occur in the area (*P. arminjoniana*, *P. neglecta*, *P. mollis* and *Lugensa brevirostris*). Measurements (in mm) of the specimen are: culmen 39.1, bill width at base 15.3, tarsus 43.5, total length 400, wing 323, wingspan 1,060, tail 125, and body mass 385 g. It was moulting contour feathers in the head, upper- and underparts. No tail and wing moult was found. Additionally, there was no subcutaneous fat, in accordance with the low body mass despite it being a large bird, based on measurements. The stomach contained old squid beaks, along with two pairs of fish otholits and a hard plastic piece. The specimen had lost some feathers near the bill base due to decomposition, but the absence of a greyer face and chin clearly resemble *P. m. macroptera*.

Acknowledgements

I thank NEMA (Núcleo de Educação e Monitoramento Ambiental) and their Beach Monitoring Team (Danielle S. Monteiro, Sérgio C. Estima and Rodrigo B. Menezes) for logistical support. Adrián Aspiroz and Christian Savigny provided additional information on Uruguayan and Argentine records. Thanks are also due to Luís Fábio Silveira for providing data on MZUSP specimens.

References:

BirdLife International. 2004. *Threatened birds of the world 2004*. CD-ROM. BirdLife International, Cambridge, UK.

Camphuysen, K. & van der Meer, J. 2000. Notes on the distribution of the Spectacled Petrel *Procellaria conspicillata* in the Southern Ocean. *Atlantic Seabirds* 2: 13–18.

Cuello, J. 1975. Las aves del Uruguay. *Com. Zool. Mus. Hist. Nat. Montevideo* 10: 1–27.

Escalante, R. 1980. Primera denuncia de un Petrel de Kerguelen colectado sobre la costa atlántica de Sudamérica. *Hornero* 12: 41–44.

Harris, M. P. & Hansen, L. 1974. Sea-bird transects between Europe and Rio Plate, South America, in autumn 1973. *Dansk. Orn. Foren. Tidsskr.* 68: 117–137.

Harrison, P. 1983. *Seabirds: an identification guide.* Houghton Mifflin, Boston.

Marchant, S. & Higgins, P. J. (eds.) 1990. *Handbook of Australian, New Zealand and Antarctic birds*, vol. 1. Oxford Univ. Press, Melbourne.

Mazar Barnett, J. & Pearman, M. 2001. *Annotated checklist of the birds of Argentina.* Lynx Edicions, Barcelona.

Pinto, O. M. O. 1938. Catálogo das aves do Brasil e lista dos exemplares que as representam no Museu Paulista. Primeira parte. *Rev. Mus. Paulista* 22: 1–566.

Serventy, D. L., Serventy, V. & Warham, J. 1971. *The handbook of Australian sea-birds.* A. H. & A. W. Reed, Sydney.

Teixeira, D. M., Nacinovic, J. B. & Novelli, R. 1985. Notes on some Brazilian seabirds. *Bull. Brit. Orn. Cl.* 105: 49–51.

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Arid-land birds and the nomadism concept

by P. J. Cowan

Received 29 March 2005

Records of the sudden arrival of birds at newly occurring resources, and apparent lack of evidence of other movement strategies, appears to be the basis of a population or species of arid-land bird being termed nomadic (Brooker *et al.* 1979, Thomas 1984, Dean 1997, 2004). However, there are obvious difficulties in distinguishing potential nomads from individuals or groups with other spatial strategies when using observations of species that occur over large areas poorly covered by ornithologists. Wiens (1991) noted that nomadism has often been considered a characteristic feature of arid-land birds but that such assessments were based primarily on anecdotal accounts or short studies at single locations. Nix (1976) stated 'Too often, bird movements [in Australia] are labeled nomadic because this provides a ready-made answer to otherwise puzzling and cryptic observations.' The Wattled Starling *Creatophora cinerea* of Africa is regarded as nomadic, though Craig (1996) acknowledged that the itinerary of individual flocks was unknown. Some studies of claimed avian nomads have suggested or shown other patterns of spatial use (Wyndham 1983, Jones 1989, Zann 1996). Dean (2004) considered there to be 233 nomadic bird species in the terrestrial habitats of the world's arid lands. However, the evidence for the nomadic nature of these species is largely circumstantial. Indeed, apart from Australian and southern African species, the evidence is often tenuous. Keast (1968) and Dean (2004) also referred to 'local nomads', an apparent contradiction in terms. According to the latter author there are 433 locally nomadic arid-land species. The purpose of the present note is to attempt to clarify the nomadism concept and discuss its usage.

In a work on Australian birds, Keast (1961) defined nomadic species as those that undertake extensive group movements of irregular amplitude and direction and breed wherever conditions happen to be suitable. He stated that some nomadic species are sedentary for a year or more, moving with the onset of a drought, some are nomadic in part of their range only and that 'In the more typical nomads, however, the movements are general, irregular, occur frequently, and are of considerable amplitude. Many have, seasonally, a south–north bias to the movements.' Brown *et al.* (1982) considered that avian nomads move about very irregularly, taking advantage of temporarily favourable conditions to breed, sometimes in large numbers, then moving away again. Shields (1983) defined a nomadic organism as one in which no stage of its life cycle shows site tenacity, individuals wandering more or less widely throughout their lives. Avian nomads are birds that move from place to place without regard to season or direction (Davies 1984). 'Most fabled are the [avian, arid-land] nomadic species, which undertake erratic, unpredictable, and large-scale movements in response to poor conditions in one area and/or good conditions in another…' (Wiens 1991). According to Lidicker

& Stenseth (1992) and Zann (1996), nomads are in a chronic state of dispersal and fail to establish a home range anywhere. Dean & Milton (1999) noted that avian nomads may move over hundreds of kilometres to find rainfall patches. Chan (2001) considered avian nomadism to be where birds wander constantly to wherever conditions are suitable for breeding and foraging, annual variations occurring in the routes taken and in the distances travelled. Finally, Dean (2004) defined avian nomads as 'Species that move somewhat unpredictably on a regional scale, varying in numbers of individuals present at any one locality; characterized by short or long absences, during which no individuals may be present for periods ranging from months to several years'.

Clearly, nomads are lifetime wanderers that move from resource patch to resource patch. The directions taken by nomads are opportunistic and any return to their natal area is fortuitous. Nomads could show to-and-fro movements if the pattern of rainfall tended to produce seasonal changes in resource distribution, resources occurring in different areas in different seasons. However, any rains failure, diminution or delay, or reversal of the usual pattern of rainfall, would produce an appropriate change in nomads' movements as they search for and track resources. Nomads will remain at a site whilst conditions are favourable.

The expression local nomad refers to a pattern of spatial use different from nomadism. Keast (1968), in a review of seasonal movements by Australian honeyeaters (Meliphagidae), defined local nomads as members of populations or species where nomadism is restricted 'to an amplitude of a few miles or to the general district or area of breeding'. Dean & Milton (1999, 2001) noted that local nomads remain in one general area, forming flocks when not breeding, and wandering locally. Dean (2004) defined local nomads as 'Species that wander or move on a landscape scale, forming flocks or small groups, but individuals always present at any one locality'.

Rather, 'local nomads' are residents, searching and foraging in a home range. Davies (1984) considered that nomadism in desert birds differs only in degree from the movements of a resident species utilising those parts of its territory or home range where resources happen to be most abundant. However, residents benefit from increasing familiarity with their home range. Use of the term local nomad perhaps stems from an earlier reported dichotomy. Heape (1931), discussing nomadism, distinguished between animals that wander freely and those restricted to wandering within a defended area, e.g. peoples roaming over tribal areas. To avoid confusion with nomadism, so-called local nomads would be better described as local wanderers, rovers or roamers.

Dean (2004) noted species in which immatures are nomadic and adults are not, and where migrants in their non-breeding quarters are nomadic. Rowley (1975) referred to partial nomads, which return to traditional breeding sites, and considered the Inland Dotterel *Peltohyas australis* of Australia a possible example. Ford (1989) stated 'At its most extreme nomadism can occur at any time of year and involves the movement of a significant proportion of the population outside its normal

range.' Heape (1931) felt that all species of animals capable of locomotion are nomadic to some extent. Instead, terms other than nomadic and nomadism should be used to describe wandering that is part of non-nomadic lifetime spatial strategies.

Jennings (1995) considered that many arid-land birds in Arabia, especially larks, are nomadic in pursuit of suitable breeding and feeding conditions but that the majority of movements go unnoticed through poor observer coverage in remote areas. He stated that there had not been any thorough study of nomadism among birds in Arabia but hoped that ringing schemes would help. Marking programmes are essential to elucidate the movements of suspected nomads, as the following studies demonstrate.

Wyndham (1983) carried out field work including transect surveys and analysed published and unpublished records, questionnaire surveys, ringing records and nest record cards to assess the movements and breeding of the apparently nomadic Budgerigar *Melopsittacus undulatus*, which occurs widely in Australian arid lands. He proposed, rather, that when food becomes scarce, experienced Budgerigars move towards traditional locations and naïve birds either follow or move at random. When a location with ample food is found, traditional or otherwise, they settle and if nest holes and water are available they breed.

The granivorous Red-billed Quelea *Quelea quelea* of Africa was thought to be the textbook example of a nomadic species, roaming opportunistically in marauding swarms (Jones 1989). Subsequent research used various techniques to establish the location and movements of birds, such as mass-marking with fluorescent pigment particles and monitoring radio-tagged birds from a helicopter (Bruggers & Elliott 1989). This species, in fact, lays down deposits of pre-migratory fat prior to undertaking a to-and-fro early-rains / breeding migration associated with advancing rain fronts (Jones 1989).

Some authors have treated the Australian Zebra Finch *Taeniopygia guttata* as nomadic. However, Zann (1996) proposed, on the basis of ringing and other data, that a Zebra Finch population is composed of a number of nesting colonies in a large home range within which is located at least one watering site. Individuals move between colonies within the home range. Depending on local conditions nesting colonies may be deserted in favour of others in the home range. In dry periods the birds can also wander outside the home range, whilst in long periods of drought the birds may undergo large-scale movements away from the home ranges that can result in the establishment of populations at new sites.

Dean (2004) included the Houbara Bustard *Chlamydotis undulata* as a nomad though indicated that the species can also be resident. A ringing and satellite-tracking programme (41 individuals equipped with satellite transmitters) has further confirmed the migratory nature of Houbara in the eastern range of this species, in Asia (Combreau *et al.* 2001). Hingrat *et al.* (2004) studied movements of Houbaras in eastern Morocco. Five years of field surveys were conducted which included tracking 30 radio-tagged Houbaras from the ground or air for at least one complete year. Six males and six females were followed for three successive breeding

seasons. The mean annual home range of males (17 km²) was smaller than that of females (146 km²). These Houbara appeared sedentary with relatively limited home ranges, and successive years of fidelity to home ranges further indicated lack of nomadism (Hingrat *et al.* 2004).

The movements of Emus *Dromaius novaehollandiae* in Western Australia were studied using counts either side of a 190-km section of a barrier fence, 1959–1972, and by ringing (Davies 1984). The directions of the birds' movements appeared mainly consistent with nomadism. When there is little rainfall large shifts of the Emu populations occur, out of dry places and into those that have received recent rain. In one year the normal pattern of precipitation reversed and the pattern of Emu movements reversed accordingly. Dingle (1996) commented that Emu movements appear to be 'truly migratory, rather than simply extended foraging' as Emus sometimes pass through good feeding grounds when apparently moving towards recent rainfalls (Davies 1984), i.e. are undistracted by favourable habitat. Emus might, though, be choosing the prospect of even better or more extensive feeding grounds.

Nomadism can be a useful paradigm for understanding the movements of arid-land birds from area to area. However, it may be only one of many different lifetime spatial strategies employed.

References:

Brooker, M. G., Ridpath, M. G., Estbergs, A. J., Bywater, J., Hart, D. S. & Jones, M. S. 1979. Bird observations on the north-western Nullarbor Plain and neighbouring regions, 1967–1978. *Emu* 79: 176–190.

Brown, L. H., Urban, E. K. & Newman, K. (eds.) 1982. *The birds of Africa*, vol. 1. Academic Press, London.

Bruggers, R. L. & Elliott, C. C. H. (eds.) 1989. *Quelea quelea: Africa's bird pest.* Oxford Univ. Press.

Chan, K. 2001. Partial migration in Australian landbirds: a review. *Emu* 101: 281–292.

Combreau, O., Launay, F. & Lawrence, M. 2001. An assessment of annual mortality rates in adult-sized migrant Houbara Bustards (*Chlamydotis* [*undulata*] *macqueenii*). *Animal Conserv.* 4: 133–141.

Craig, A. J. F. K. 1996. The annual cycle of wing-moult and breeding in the Wattled Starling *Creatophora cinerea*. *Ibis* 138: 448–454.

Davies, S. J. J. F. 1984. Nomadism as a response to desert conditions in Australia. *J. Arid Environ.* 7: 183–195.

Dean, W. R. J. 1997. The distribution and biology of nomadic birds in the Karoo, South Africa. *J. Biogeogr.* 24: 769–779.

Dean, W. R. J. 2004. *Nomadic desert birds*. Springer, Berlin.

Dean, W. R. J. & Milton, S. J. 1999. Animal foraging and food. Pp. 164–177 *in* Dean, W. R. J. & Milton, S. J. (eds.) *The Karoo: ecological patterns and processes.* Cambridge Univ. Press.

Dean, W. R. J. & Milton, S. J. 2001. Responses of birds to rainfall and seed abundance in the southern Karoo, South Africa. *J. Arid Environ.* 47: 101–121.

Dingle, H. 1996. *Migration: the biology of life on the move*. Oxford Univ. Press, New York.

Ford, H. A. 1989. *Ecology of birds: an Australian perspective.* Surrey Beatty & Sons, New South Wales.

Heape, W. 1931. *Emigration, migration and nomadism.* W. Heffer & Sons, Cambridge, UK.

Hingrat, Y., Saint Jalme, M., Ysnel, F., Lacroix, F., Seabury, J. & Rautureau, P. 2004. Relationships between home-range size, sex and season with reference to the mating system of the Houbara Bustard *Chlamydotis undulata undulata*. *Ibis* 146: 314–322.

Jennings, M. C. 1995. *An interim atlas of the breeding birds of Arabia.* National Commission for Wildlife Conservation & Development, Riyadh.

Jones, P. J. 1989. General aspects of quelea migrations. Pp. 102–112 *in* Bruggers, R. L. & Elliott, C. C. H. (eds.) *Quelea quelea: Africa's bird pest.* Oxford Univ. Press.
Keast, A. 1961. Bird speciation on the Australian continent. *Bull. Mus. Comp. Zool., Harvard Univ.* 123: 305–495.
Keast, A. 1968. Seasonal movements in the Australian honeyeaters (Meliphagidae) and their ecological significance. *Emu* 67: 159–209.
Lidicker, W. Z. & Stenseth, N. C. 1992. To disperse or not to disperse: who does it and why? Pp. 21–36 *in* Stenseth, N. C. & Lidicker, W. Z. (eds.) *Animal dispersal: small mammals as a model.* Chapman & Hall, London.
Nix, H. A. 1976. Environmental control of breeding, post-breeding dispersal and migration of birds in the Australian region. *Proc. Intern. Orn. Congr.* 16: 272–305.
Rowley, I. 1975. *Bird life.* Taplinger, New York.
Shields, W. M. 1983. Optimal inbreeding and the evolution of philopatry. Pp. 132–159 *in* Swingland, I. R. & Greenwood, P. J. (eds.) *The ecology of animal movement.* Clarendon, Oxford.
Thomas, D. H. 1984. Adaptations of desert birds: sandgrouse (Pteroclididae) as highly successful inhabitants of Afro-Asian arid lands. *J. Arid Environ.* 7: 157–181.
Wiens, J. A. 1991. The ecology of desert birds. Pp. 278–310 *in* Polis, G. A. (ed.) *The ecology of desert communities.* Univ. Arizona Press, Tucson.
Wyndham, E. 1983. Movements and breeding seasons of the Budgerigar. *Emu* 82: 276–282.
Zann, R. A. 1996. *The Zebra Finch: a synthesis of field and laboratory studies.* Oxford Univ. Press.

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The valid specific name of the Streaked Fantail

by Edward C. Dickinson & Dick Watling

Received 14 April 2005

In Dickinson (2003) the Streaked Fantail is named *Rhipidura spilodera* and the nominate form was described by G. R. Gray (1870). Four other subspecies were listed. As part of work toward a fourth edition of *The Howard & Moore complete checklist of birds of the world*, we observed that a second subspecies also dates from 1870 and that there was a possibility that the New Caledonian form might have been named earlier.

Gray's *Rhipidura spilodera* dates from the May issue (no. xxix) of the *Annals and Magazine of Natural History*. We have examined the original description of *Rhipidura verreauxi* by M. E. Marie[1] in the *Actes de la Société Linnéenne de Bordeaux* 27(4): 326–327. This is followed on pp. 327–328 by a 'Catalogue complet des espèces observées' in New Caledonia. At the foot of p. 328 the date '30 avril

[1] The name Marie appears in small capitals. Wynne (1966) rendered it as Marié. Wynne noted that he was a conchologist, and the Royal Society (1879) list papers in 1867–70 on that subject, some of them from Nouvelle Caledonie, by 'Marie, Ed.' (with no accent).

1870' appears. Further examination of this journal shows that dates appearing like this at the end of an issue matched wrapper dates[2] and must be construed as publication dates or 'dates specified' (Art. 21.2 of the Code: ICZN 1999). Given the reputed regularity with which the *Annals & Magazine of Natural History* appeared (Evenhuis 2003) it cannot be excluded that the name *R. spilodera* Gray appeared first. However, we know of no evidence to suggest, let alone prove, that the *Actes* were not published with equal dispatch. Both names are available and in use and the conditions set out in Art. 23.9.1 are not met. Since they are not met, Art. 23.11 of the Code is not applicable here and we believe that the name *Rhipidura verreauxi* must be accorded priority over Gray's name; consequently, as we now understand the relationships of these forms, this must be used as the specific name.

Acknowledgements

We are indebted to M. Xavier Mortier of the Société Linnéenne de Bordeaux and M. Henri Lachèze for help with the paper describing *Rhipidura verreauxi*. Alison Harding (Natural History Museum, Tring) kindly verified the details of Gray's description of *Rhipidura spilodera*. Finally our thanks go to the five people whom we consulted and who helped us to understand the proper interpretation of the Code, and to our referee, Walter Boles, who suggested several improvements.

References:

Dickinson, E. C. (ed.) 2003. *The Howard & Moore complete checklist of birds of the world*. Third edn. Christopher Helm, London.

Evenhuis, N. L. 2003. Publication and dating of the journals forming the Annals and Magazine of Natural History and the Journal of Natural History. *Zootaxa* 385: 1–68.

Gray, G. R. 1870 (May 1). Descriptions of new species of birds from the Solomon and Banks's Islands. *Ann. Mag. Hist. Nat.* (4) 5 (xxix): 327–331. [Description on p. 330.]

International Commission on Zoological Nomenclature. 1999. *International code of zoological nomenclature*. Fourth edn. The International Trust for Zoological Nomenclature, c/o The Natural History Museum, London.

Marie, E. 1870 (April 30). *Rhipidura verreauxi*. *Actes de la Société Linnéenne de Bordeaux* 27 (4): 326–327. [Description on p. 326.]

Royal Society. 1879. Catalogue of scientific papers, 1864–1873. Vol. 7: 1–1310.

Wynne, O. E. 1966. *Biographical key—names of birds of the world*. Privately published, Fordingbridge.

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[2] This was found in Vol. 25 where both livraisons 5 and 6 have wrapper dates that agree with dates shown at the end of the last page of text. In Vol. 27, consulted at The Natural History Museum, London, there are no wrappers but livraisons 1–3 were checked and at the end of them are, respectively, the dates 20 avril 1869, 30 septembre 1869 and 30 avril 1870. Livraison 4 terminates with signature 33 which seems to end about p. 442, but no date was found on there or neighbouring pages.

Nidification of Dwarf Whistler *Pachycare flavogriseum*, a little-known New Guinea endemic

by Andrew L. Mack & Steffen Oppel

Received 21 April 2005

The Dwarf Whistler or Goldenface *Pachycare flavogriseum* is a distinctive monotypic genus confined to hill and montane forests at 400–1,800 m on New Guinea (Coates 1990). *Pachycare* is the smallest of the Pachycephalidae with distinctive coloration, and its position in the family is uncertain (Coates 1990). Sibley & Monroe (1990) stated that it might be related to the Australian robins (*Petroica*, *Eopsaltria*). Four subspecies are generally recognised, *flavogriseum*, *subaurantium*, *subpallidum* and *randi*, distinguished mostly by the relative brightness of their plumage, a character that varies with specimen age (Rand & Gilliard 1968). Modern phylogenetic analyses, using either morphological or molecular data, that could clarify the affinities of this distinctive genus have not been undertaken, despite some research on the Pachycephalidae (Sibley & Ahlquist 1982, Dumbacher & Fleischer 2001). Furthermore, little is known of *Pachycare* natural history, providing additional few clues to its systematics.

Breeding data are available only for race *subpallidum*. The nest is poorly known, described only briefly from one sent to Lord Rothschild from the Rawlinson Mountains, in the eastern Huon Peninsula (Rothschild & Hartert 1913). It was noted as 'a large structure of fibres and decayed leaves, wrapped up in fresh leaves. Its original shape is uncertain, but it seems to be a cave about 10 cm deep, narrowing below; the entrance has apparently been at the top.' This appears to be the only published description of the nest.

The eggs were also briefly described. Those sent to Rothschild were 'whitish-pink...covered all over with rufous pink spots and patches' and measured *c*.21 x 15 mm (Rothschild & Hartert 1913). A different set of two in the British Museum (Natural History), reported as from the Rawlinson Mountains, were glossy and pinkish in ground colour, but almost entirely obscured by dense markings consisting of fine blotches, spots and smears of russet, maroon and purple (Frith 1971); they measured 21.0 x 15.0 and 20.5 x 15.0 mm. There were no nest notes associated with this clutch.

Observations

Here we report recent observations of nests and eggs in the Crater Mountain Wildlife Management Area, Eastern Highlands province, Papua New Guinea. One nest (nest 1) was observed near the village of Herowana (06°39'S, 145°11'E), at *c*.1,400 m, on 29 November 2004. A further nest (nest 2) was observed at Crater Mountain Biological Research Station (CMBRS) (06°43'S, 145°05'E) at *c*.1,100 m,

on 14 June 2004. Vegetation is typical of the mid-elevation high rainfall zone (Hyndman & Menzies 1990) along the southern scarp of the central cordillera (Wright *et al.* 1997), and the avifauna is well documented (Mack & Wright 1996). The wide spread in breeding dates is not unusual in the Crater Mountains (unpubl. data). At both nests attendant *Pachycare flavogriseum* were positively identified at close range. Sitting birds remained on the nest and only flushed when an observer approached within 2 m. When discovered, nest 1 had two chicks that appeared to be *c.*2 days old. Upon revisiting the nest one week later the chicks were absent and the adults not in evidence. The nest was dismantled carefully to examine its construction. Nest 2 was revisited several times in early July when no adults were evident and one cold egg was removed on 13 July.

Nest 2 was almost complete when discovered. A male and female *Pachycare* were observed bringing nest material to nest 2, on 14–19 June. They approached the nest together, perching on low branches *c.*30–150 cm above ground. The final leap to the nest entrance was made from a small branch 2–3 m from the entrance and 40 cm above ground. When carrying nest material, the male invariably entered the cavity first. Typically, the female perched on the low branch mentioned above until the male left, entering the nest 10–20 seconds later. Both spent roughly equal time inside the nest, ranging 8–84 seconds. The male perched in a nearby tree until the female emerged from the cavity, and they departed together. During the period of intensive building activity both returned after 2–5 minutes with new material. That carried inside the cavity consisted of dry moss, lichen and plant filaments or grass. Contact calls between the pair in the vicinity of the nest were very distinctive. Both sexes uttered a muted, high-pitched twittering and some low-volume trills. During observations on 19 June at nest 2 building activity was much reduced. Only the female entered the cavity, twice for more than 60 seconds, with visits 15 minutes apart. The male stayed with the female when approaching the nest and waited for her to exit. The male did not carry any material and did not enter the cavity.

The egg found was subelliptical, 22.3 x 16.5 mm and weighed 3.2 g. It was glossy at the narrow end, but matt at the blunt end. The base colour was rose white with the rose tone slightly stronger at the middle and paler near both ends. Very small (<0.3mm) speckles and blotches were sparsely scattered over the entire egg except the smaller tip. A distinct corona of many small and several larger (1-mm) blotches formed an almost continuous band *c.*4.5 mm wide at the broader end. Splotches were darker than the background and were dark greyish to rusty rufous-brown.

Both nests were on the ground against the downhill base of a sapling or small tree on a slope. It is a domed globe, *c.*15–18 cm in external diameter, formed of three separate components: the foundation, nest dome, and cap. The base foundation is a mat of twigs in a shallow depression. The twigs are straight, dry but not rotten, with somewhat larger twigs against the ground, up to 160 mm long by 4 mm diameter. On these is a thicker layer of smaller twigs up to 105 mm by 3.8 mm diameter. On this platform is constructed a globe that lifts neatly off the foundation,

i.e. the twigs of the platform are not incorporated into the nest dome. The globe is a moderately tight intertwined ball of fairly decayed monocot leaf strips, probably mostly bamboos and other grasses. The strips appear to have been already decayed when used, giving the mass the appearance of decomposing leaf litter. The entrance faced downhill and has a small 'vestibule'. The inside of the globe is woven more tightly with finer strips of monocot leaves or other plant fibres.

The cap comprises less rotten, but dead and decomposing leaves, laid loosely over the dome in a dense layer that seems to keep the interior quite dry. Some of these leaves were placed to droop slightly over the mouth of the entrance, casting a deep shadow over the entry, making it necessary to crouch close to the ground in order to view into the nest. Overall, the nest looked like an accumulation of leaf litter as typically piles up at the base of a sapling or small tree, with leaves on top covering a layer of more decayed vegetation. The effect was such that even from 2 m it was extremely well camouflaged and hard to distinguish as a nest.

Discussion

This nest is strikingly different from all other known Pachycephalid nests, which typically build cup or platform nests above the ground. Indeed, the structure of the observed *Pachycare* nest is unlike almost all nests of birds in the region. Nor does the nest resemble those of *Petroica* or *Eopsaltria* (Higgins & Peter 2002), two genera of which *Pachycare* has been speculated to be an ally (Sibley & Monroe 1990). Interestingly, the nest bears a close resemblance to those described for *Orthonyx temminckii* in Papua New Guinea (Coates 1990) (=*O. novaeguineae*, see Joseph *et al.* 2001) and *O. temminckii* in Australia (North 1904, Boles 1988, Higgins & Peter 2002), and is fairly similar to that of *O. spaldingii* (Frith *et al.* 1997, Higgins & Peter 2002). The resemblance of *O. temminckii* and lyrebird nests (*Menura* spp.) has also been noted (Higgins & Peter 2002); thus *Pachycare* also resembles a scaled-down lyrebird nest in that it is a globular domed nest with a side entrance on the ground atop a platform of twigs. Nest architecture can be a useful character in reconstructing phylogenies (Sheldon & Winkler 1999, Zyskowski & Prum 1999).

Because the Pachycephalidae is a fairly heterogeneous mix of taxa, there are few characters that can definitively delineate the family. Pachycephalid bill form varies from *Eulacestoma* with its odd, laterally compressed bill to *Colluricincla* with a strong hooked bill, whereas *Pachycare* has a slenderer bill than the other genera in the family. *Pachycare* is not that radically different from other taxa, with a loud melodious song, weak sexual dimorphism, insectivorous habits, and a distinctive facial pattern. The skull is somewhat slimmer than *Pachycephala* and *Pachycare* is generally more active and energetic than many of the other whistlers. These differences are minor, but have led to some speculation about if and where *Pachycare* belongs in the family (Coates 1990). We suggest the exceptionally different *Pachycare* nest from other Pachycephalids indicates that the genus represents either a distinct lineage outside Pachycephalidae or that it is a sister group to the other Pachycephalids. We suspect it is unlikely that such a distinctive nest is

an autapomorphy of a lineage the Pachycephalid clade having relatively homogenous nest architecture.

Acknowledgements

We thank the people of the Crater Mountain Wildlife Management for permission to observe birds on their lands and the Papua New Guinea Department of Environment & Conservation for permissions to study birds.

References:

Boles, W. E. 1988. *The robins and flycatchers of Australia*. Angus & Robertson, North Ryde.

Coates, B. J. 1990. *Birds of Papua New Guinea: passerines*. Dove Publications, Alderley.

Dumbacher, J. P. & Fleischer, R. C. 2001. Phylogenetic evidence for colour pattern convergence in toxic pitohuis: Müllerian mimicry in birds? *Proc. Roy. Soc. Lond. Ser. B* 268: 1971–1976.

Frith, C. B. 1971. Nidification of some New Guinea birds. *Bull. Brit. Orn. Cl.* 91: 164–165.

Frith, C. B., Frith, D. W. & Jansen, A. 1997. The nesting biology of the Chowchilla, *Orthonyx spaldingii* (Orthonychidae). *Emu* 97: 18–30.

Higgins, P. J. & Peter, J. M. (eds.) 2002. *Handbook of Australian, New Zealand and Antarctic birds*, vol. 6. Oxford Univ. Press, Melbourne.

Hyndman, D. C. & Menzies, J. I. 1990. Rain forests of the Ok Tedi headwaters, New Guinea: an ecological analysis. *J. Biogeogr.* 17: 241–273.

Joseph, L., Slikas, B., Alpers, D. & Schodde, R. 2001. Molecular systematics and phylogeography of New Guinean logrunners (Orthonychidae). *Emu* 101: 273–280.

Mack, A. L. & Wright, D. D. 1996. Notes on the occurrence and feeding of birds at Crater Mountain Biological Research Station, Papua New Guinea. *Emu* 96: 89–101.

North, A. J. 1904. *Nests and eggs of birds found breeding in Australia and Tasmania*. F. White, Sydney.

Rand, A. L. & Gilliard, E. T. 1968. *Handbook of New Guinea birds*. Natural History Press, Garden City.

Rothschild, W. & Hartert, E. 1913. List of the collections of birds made by Albert S. Meek in the lower ranges of the Snow Mountains, on the Eilanden River, and on Mount Goliath, during the years 1910 and 1911. *Novit. Zool.* 20: 473–527.

Sheldon, F. H. & Winkler, D. W. 1999. Nest architecture and avian systematics. *Auk* 116: 875–877.

Sibley, C. G. & Ahlquist, J. E. 1982. The relationships of the Australasian whistlers *Pachycephala* as indicated by DNA-DNA hybridization. *Emu* 82: 199–202.

Sibley, C. G. & Monroe, B. L. 1990. *Phylogeny and classification of birds of the world*. Yale Univ. Press, New Haven & London, UK.

Wright, D. D., Jessen, J. H., Burke, P. B. & Garza, H. G. S. 1997. Tree and liana enumeration and diversity on a one-hectare plot in Papua New Guinea. *Biotropica* 29: 250–260.

Zyskowski, K. & Prum, R. O. 1999. Phylogenetic analysis of the nest architecture of Neotropical ovenbirds (Furnariidae). *Auk* 116: 891–911.

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Aberrant distributional records of Cordilleran Buzzard (Hawk) *Buteo poecilochrous* in Colombia reflect confusion with White-tailed Buzzard (Hawk) *B. albicaudatus*

by J. Cabot, T. de Vries & F. G. Stiles

Received 5 May 2005

Cordilleran or Puna Buzzard (Hawk) *Buteo poecilochrous* is restricted to the high Andes from southern Colombia to northern Argentina and Chile (Fjeldså & Krabbe 1990). According to Lehmann (1945), it occurs in southern Colombia at 500–2,000 m in the upper Cauca and upper Patía valleys, in the upper tropical and subtropical zones. Meyer de Schauensee (1964) and Hilty & Brown (1986) also reported the species from this area at the same altitudes, undoubtedly following Lehmann (1945). Thiollay (1994) commented on the 'somewhat confusing situation in Colombia, where [the] species [is] suspected to be migrant, because no breeding reported, but populations in Bolivia and Peru reported to be resident all year round, leaving source of any migrants to Colombia as a mystery'.

Both altitudinal range and distribution in Colombia are somewhat anomalous compared to elsewhere in its range, where it occurs above 3,000 m on peaks and cliffs of the cordillera crest and on hillsides and rocky areas in the *puna* and *páramo* (for Ecuador, see Solís & Black 1985 and Coello 1997; Peru, Koepcke 1964 and Walker 2002; Bolivia, Remsen & Traylor 1989 and Cabot 1991; Chile, Johnson 1965; and Argentina, Narosky & Yzurieta 1987), quite different to the dry inter-Andean valleys of the Cauca and Patía rivers in southern Colombia.

Erroneous records

Lehmann (1945) cited the species for Colombia on the basis of birds he collected and observed in Paloverde and Diego Pérez, municipality of El Bordo (02°07'N, 76°59'W), in the Patía Valley, on the Pacific slope of dpto. Cauca, and from a specimen taken at Pavas (05°16'N, 75°03'W), in the western Cordillera, by Swedish naturalist Kjell von Sneidern. He based his identification on their supposedly longer tails and larger size and robustness compared to White-tailed Buzzard (Hawk) *Buteo albicaudatus*, and because they preferred steep mountain slopes, despite breeding in trees. In fact, the geographical range and altitudes assigned to *Buteo poecilochous* in Colombia are erroneous as they are based on misidentified specimens, all of which are *B. albicaudatus*. However, we confirm that *B. poecilochrous* is present in southern Colombia, in areas similar to its known habitat elsewhere, above 3,000 m. The confusion regarding the identity of the specimens collected by Lehmann and von Sneidern becomes patent after examining the following birds: ICN 8724, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá

(subadult male, Los Corrales, Patía, Cauca, 900 m, taken by Lehmann, 28 September 1943); NHMUC OK0098E, Museo Historia Natural, Universidad de Cauca, Popayán (juvenile male taken by Lehmann, but no other details); NMR 568608, Museum of Natural History, Stockholm (dark juvenile male, río Timbío, Cauca, 1,100 m, taken by von Sneidern, 20 January 1936); and MHNG 1125.065, Museum La Ville, Genève; dark subadult female, Tambo, Charguayaco, Valle del Cauca, 1,750 m, taken by von Sneidern, 2 November 1957). All are, in fact, *B. albicaudatus*, being dark blackish slate above with relatively long pointed wings. The primaries are rather long compared to the secondaries and noticeably longer than the tail; and other plumage characteristics and measurements also separate them (de Vries 1973, Cabot & de Vries 2005). Lehmann (1945) gave the following characteristics for these birds. Adults dark slate above (and also ventrally in dark morphs), with a metallic 'tint' (however, *B. poecilochrous* is pale to mid grey above, with northern birds paler than southern examples from Bolivia, Chile and Argentina). Adult females have reddish-brown lesser wing-coverts and scapulars (but, in fact, *B. poecilochrous* has an extensive uniform reddish-brown mantle, sometimes extending to the tertials, and subadult males of both species have reddish-brown backs). Pale-morph adults have the head-, neck- and throat-sides dark slate grey (actually, in *B. poecilochrous* these parts are pure white). In dark-morph subadults (treated by Lehmann as adults) the breast is barred grey-black and white with hazel tones (both sexes of *B. poecilochrous* have somewhat reddish-brown barring or a reddish-brown breast-band and reddish mantle at this age). Dark-morph juveniles and subadults are blackish with pale whitish areas (but, in truth, these plumages of *B. poecilochrous* are brown with cinnamon or buffish markings). Given the reddish-brown back and grey and white throat, head- and neck-sides, the plate in Lehmann (1945), purportedly of a pale-morph female *B. poecilochrous*, in fact is a *B. albicaudatus* adult in defintive plumage.

Buteo albicaudatus and *B. poecilochrous* (and Variable Buzzard [Hawk] *B. polyosoma*) exhibit two colour morphs and a process of delayed maturation with several different age-related plumage types that are similar between species (with some specific differences) at equivalent ages (Cabot & de Vries 2005). Even without taking into account subtle individual and geographical variation, their separation is undoubtedly difficult, especially juveniles and subadults of dark-morph *B. albicaudatus* and *B. poecilochrous* (Cabot & de Vries 2005), which similarities were also mentioned by Gurney (1879) and have led to *B. poecilochrous* being attributed spatial requirements in Colombia very different from those it actually occupies throughout its range.

Reliable record

The only authentic Colombian record of *B. poecilochrous* is a fourth-year pale morph, held in the Instituto de Ciencias Naturales, Bogotá, ICN 12502, from the region of Alto Chaitán (00°59'N, 77°35W), south of Túquerres, Nariño, at *c.*3,500 m (taken 20 December 1961 by Alejandro Jurado). It is uniform white below and grey

on the back, with the typical dorsal patch of an adult female. The specimen shows several characteristics of the species (Cabot & de Vries 2003, 2004): obvious dark barring at the base of the primaries, and on the secondaries, tertials and greater and median wing-coverts. It also has relatively blunt-tipped primaries, a relatively broad wing due to the proportionately longer secondaries, and wing-length 458 mm. The age can be determined by the narrow subterminal black tail-band, and the larger pale reddish brick patch from the nape through mantle, scapulars to the tertials where in these feathers is distally dark barred. The back patch reaches the foreneck-sides, forming a red mark visible from below on both sides of the foreneck. In definitive plumage the pale-morph adult female has a broader subterminal band, the back patch is uniformly red brick, and confined to the mantle, and the marks either side of the lower foreneck are grey. The specimen in question has the characteristic plumage of the northern (Ecuadorian) population: mid-grey back, back patch confined to the mantle, median and lesser wing-coverts obviously barred blackish, and a white trailing edge to the primaries and secondaries. Female *B. polyosoma* can be confused with *B. poecilochrous*, but is always separable by wing-length, with no overlapping values (Cabot & de Vries 2003). Females of *B. polyosoma* in several European and Ecuadorian collections (12 from Ecuadorian and one from the Colombian Andes) have noticeably shorter wing-length values (mean = 400.11, S.D.= 7.55 mm).

This record offers confirmation that *Buteo poecilochrous* occupies the same elevations and habitats throughout its range, being a specialist of high ecosystems. Of all its congeners it has the lowest wing-loading and its broad wings may facilitate its hunting behaviour of hovering, in habitats up to 5,000 m where atmospheric pressure is almost half that at sea level and air temperatures drop to around -10° C (Mani 1980).

Acknowledgements

We are most grateful to Santiago Ayerbe, Director of the Museo de Historia Natural in Popayán, University of Cauca, whose collaboration was essential, Dr Jon Fjeldså who made many useful suggestions concerning the manuscript, and to Dr Sonia Sandoval, Executive Director of the Museo de Ciencias Naturales de Quito, Dr Marta Espinosa, Director of the Museo de Ciencias Naturales 'Mejía' in Quito, and Dr Cristina León, Director of the Museo del Instituto Técnico Superior 'Bolivar' in Ambato. Other curators who kindly allowed us to examine specimens are as follows: Dr Alice Cibois and Dr Manuel Ruedi, Museum d'Histoire Naturelle Ville de Genève, Geneva; H. Baagoe, Zoological Museum, University of Copenhagen; Dr Göran Frisk, Museum of Natural History, Stockholm; and Dr Claudio Pulcher, Museo Regionale di Scienze Naturali de Torino. We also thank staff of the Natural History Museum (Tring) for their kindness while visiting the collections. We are also indebted to Dr Lloyd Kiff and Travis Rosemberry, of the Peregrine Foundation, who provided some literature, Maria Angeles Prieto for her invaluable support and Martje Irene, Therese Isabel de Vries and Mike Lockwood who helped correct the English.

References:

Cabot, J. 1991. Distribution and habitat selection of *Buteo polyosoma* and *B. poecilochrous* in Bolivia and neighbouring countries. *Bull. Brit. Orn. Cl.* 114: 199–209.

Cabot, J. & de Vries, T. 2003. *Buteo polyosoma* and *Buteo poecilochrous* are distinct species. *Bull. Brit. Orn. Cl.* 123: 190–207.

Cabot, J. & de Vries, T. 2004. Age- and sex-differentiated plumages in the two colour morphs of the Variable Buzzard *Buteo polyosoma*: a case of delayed maturation with subadult males disguised in definitive adult female. *Bull. Brit. Orn. Cl.* 124: 272–285.

Cabot, J. & de Vries, T. 2005. Relaciones taxonómicas y plumajes de los Busardos dorsirrojos *Buteo polyosoma* y *B. poecilochrous*. I Reunión Ecuatoriana de Ornitología, 3–5 de marzo de 2005, Quito.

Coello, M. 1997. Biología reproductiva y hábitos alimenticios de *Buteo poecilochrous* en el páramo de la Reserva Ecológica Antisana, Ecuador. Thesis. Pontificia Univ. Católica del Ecuador, Quito.

de Vries, T. 1973. The Galapagos Hawk. An eco-geographical study with specific reference to its systematic position. Ph.D. thesis. Free Univ. of Amsterdam.

Fjeldså, J. & Krabbe, N. 1990. *The birds of the high Andes*. Zool. Mus., Univ of Copenhagen & Apollo Books, Svendborg.

Gurney, J. H. 1879. Note upon three American raptorial birds apparently new to science. *Ibis* 3: 171–178.

Hilty, S. L. & Brown, W. L. 1986. *A guide to the birds of Colombia*. Princeton Univ. Press.

Johnson, A. W. 1965. *The birds of Chile and adjacent regions of Argentina, Bolivia and Perú*. Platt Establecimientos Gráficos, Buenos Aires.

Koepcke, M. 1964. *Aves del departamento de Lima*. Gráfica Morsom, Lima.

Lehmann, F. C. 1945. Rapaces colombianas: subfamilia Buteoninae. *Rev. Univ. Cauca* (6): 81–114.

Mani, M. S. 1980. The physical environment of the highlands. Pp. 11–34 *in* Mani, M. S. & Giddins, L. E. (eds.) *Ecology of highlands*. Junk Publishers, The Hague.

Meyer de Schauensee, R. 1964. *The birds of Colombia*. Livingston Press, Narbeth, PA.

Narosky, T. & Yzurieta, D. 1987. *Guia para la identificación de las aves de Argentina y Uruguay*. Ed. Vázquez Mazzini, Buenos Aires.

Solís, C. & Black, J. 1985. Anidación de *Buteo poecilochrous* en Antisana. *Rev. Geogr., Quito* 21: 132–142.

Remsen, J. V. & Traylor, M. A. 1989. *An annotated list of the birds of Bolivia*. Buteo Books, Vermillion, SD.

Thiollay, J. M. 1994. Family Accipitridae (hawks and eagles). Pp. 52–206 *in* del Hoyo, J., Elliott, A. & Sargatal, J. (eds.) *Handbook of the birds of the world*, vol. 2. Lynx Edicions, Barcelona.

Walker, B. 2002. *Field guide to the birds of Machu Picchu, Peru*. Second edn. PROFONANPE, Lima.

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Reflections on the systematics of *Accipiter* and the genus for *Falco superciliosus* Linnaeus

by Storrs L. Olson

Received 15 July 2005

In a previous study, I reviewed the distribution of the procoracoid foramen in the family Accipitridae (Olson 1988). In summary, the procoracoid foramen is invariably absent in *Accipiter*, nearly absent in *Harpagus*, and lacking in some species or individuals of *Circus* but variably present in others. The foramen is present in all other genera of Accipitridae and this is obviously the primitive condition, as it is also present in most other diurnal birds of prey (Cathartidae, Sagittariidae and Falconidae).

At the time, I considered that the shared derived condition of the procoracoid in *Accipiter* and some *Circus* to be tenuous evidence of relationship at best (Olson 1988). A morphological analysis of the Accipitridae did not group *Circus* with *Accipiter*, although it did suggest that *Harpagus* was related to *Accipiter* and not to any of the kites (Holdaway 1994). In a recent molecular phylogeny (Lerner & Mindell 2005), however, *Circus* and *Accipiter* group rather conclusively as each other's closest relative, bearing out the conclusions of an earlier preliminary study (Mindell *et al.* 1997). Unfortunately, neither study included *Harpagus*, which seems odd as tissue samples are readily available.

Though the two genera are very different in their habits, it is noteworthy that at least twice, evolution has resulted in a *Circus* with a more *Accipiter*-like morphology. The long-winged, soaring species of *Circus* are much better adapted for over-water dispersal than are many *Accipter* with their short wings and rapid flight. On remote, oceanic islands birds may often be the main or only source of vertebrate food, making it advantageous to adopt the bird-catching habits and proportions of an *Accipiter*. This happened in Hawaii, where bones of the small species *Circus dossenus* were initially considered to be those of an *Accipiter* (Olson & James 1991). In New Zealand, the giant fossil species *Circus eylesi* likewise evolved the proportions of an *Accipiter* and was also first mistaken for a member of that genus (Worthy & Holdaway 2002).

One of the species that I was unable to examine in my assessment of the procoracoid foramen (Olson 1988) was Tiny Hawk, which has long been known as *Accipiter superciliosus*, based on *Falco superciliosus* Linnaeus, 1766. Since then a skeleton has become available (USNM 586298). In this, the procoracoid process has a very distinct foramen, immediately suggesting that this species may not belong in *Accipiter*. With this realisation, it is obvious that the configuration of the skull, sternum and pelvis are very different from *Accipiter*, and the hindlimb bones are much more robust than the extremely gracile elements of *Accipiter*. Molecular

studies of the same specimen likewise indicate that Tiny Hawk is not related to *Accipiter* (M. J. Braun pers. comm.).

Whereas it will remain for future studies to determine the position of Tiny Hawk within the Accipitridae, it is clear that the species can no longer be maintained in *Accipiter*. As it has no obvious relationship with any other group, it requires its own generic name. One is already available, the history of which was outlined by Hellmayr & Conover (1949). Kaup (1844: 116) proposed the name *Hieraspiza* for several East Indian species ('*einige ostindische Arten*') of *Nisus* (=*Accipiter*) to which he thought the species *virgatus* might also belong. He later (1847: col. 169) specifically listed the species *tinus*, *minulus* and *virgatus* as pertaining to *Hieraspiza*. Of these, Gray (1855) designated *Falco tinus* Latham, 1790, as the type, this being a synonym of *F. superciliosus* Linnaeus, 1766. Therefore, the Tiny Hawk should now be known as *Hieraspiza superciliosa*.

Acknowledgements

Skeletal material was examined in the Division of Birds, National Museum of Natural History, Smithsonian Institution (USNM). I thank Bill Clark for comments on the manuscript.

References:

Gray, G. R. 1855. *Catalogue of the genera and subgenera of birds contained in the British Museum*. Brit. Mus. (Nat. Hist.), London.

Hellmayr, C. E. & Conover, B. 1949. Catalogue of birds of the Americas and the adjacent islands. *Field Mus. Nat. Hist. Zool. Ser.* 13 (1, no. 4): 1–358.

Holdaway, R. N. 1994. An exploratory phylogenetic analysis of the genera of Accipitridae, with notes on the biogeography of the family. Pp. 601–649 *in* Meyburg, B.-U. & Chancellor, R. D. (eds.) *Raptor conservation today*. World Working Group on Birds of Prey, Berlin.

Kaup, J. J. 1844. *Classification der Säugetiere und Vögel*. C. W. Leske, Darmstadt.

Kaup, J. J. 1847. Monographien der Genera der Falconidae. Dritte Monographie. *Isis* 1847: cols. 161–212.

Latham, J. 1790. *Index ornithologicus*. Leigh & Sotheby, London.

Lerner, H. R. L. & Mindell, D. P. 2005. Phylogeny of eagles, Old World vultures, and other Accipitridae based on nuclear and mitochondrial DNA. *Mol. Phyl. & Evol.* 37: 327–346.

Linnaeus, C. 1766. *Systema naturae*. 12th edn. L. Salvius, Stockholm.

Mindell, D. P., Sorenson, M. D., Huddleston, C. J., Miranda, H. C. J., Knight, A., Sawchuck, S. J. & Yuri, T. 1997. Phylogenetic relationships among and within select avian orders based on mitochondrial DNA. Pp. 213–247 *in* Mindell, D. P. (ed.) *Avian molecular evolution and systematics*. Academic Press, London.

Olson, S. L. 1988. Variation in the procoracoid foramen in the Accipitridae. *Riv. Ital. Orn.* 57: 161–164.

Olson, S. L. & James, H. F. 1991. Descriptions of thirty-two new species of birds from the Hawaiian Islands. Part I. Non-Passeriformes. *Orn. Monogr.* 45: 1–88.

Worthy, T. H. & Holdaway, R. N. 2002. *The lost world of the moa: prehistoric life of New Zealand*. Indiana Univ. Press, Bloomington.

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Overlooked historical testimony as to the presence of Red-billed Tropicbird *Phaeton aethereus* in French Guiana

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Received 16 July 2005

The historical presence of Red-billed Tropicbird *Phaeton aethereus* in French Guiana has attracted some discussion in the ornithological literature. Tostain *et al.* (1992) stated: 'The work of the naturalist painter Ogier de Gombaud (Haverschmidt 1957) illustrates indisputably that a species of red-billed tropicbird *Phaeton* sp. (*aethereus*?) nested at least until the early 19th century on the Grand Connétable Island. It has since disappeared…'. Describing and commenting on a manuscript by de Gombaud and the painter's watercolours from 1803–09, Haverschmidt (1957) mentioned that 'The seabirds of the genera *Sula*, *Phaeton* and *Fregata* are particularly interesting. It seems that de Gombaud had contacts on the islands off the coast of Cayenne', although the latter possibility seems unlikely as the islands have apparently always been uninhabited (J. Ingels *in litt.* 2005). Ogier de Gombaud's drawing was thus treated as the sole proof of the presence 'until the early nineteenth century' of this species in French Guiana.

More concrete proof of the presence of *Phaeton aethereus* on Grand Connétable does, however exist, albeit largely ignored. The Polish naturalist, Konstanty Jelski (1837–96) spent four years in French Guiana. However, more than a century has passed since the only Polish edition of his memoirs of French Guiana was published, in 1898, and Jelski's work in the country nevertheless remains largely unknown, even amongst specialists. Those authors who do mention him usually refer to his stay in Peru (Boubier 1925) and his important contribution to the *Ornithologie du Pérou* (Vuilleumier 2003). For Władyslaw Taczanowski (1819–90), the Polish zoologist, Jelski was one of the most important sources of specimens of Neotropical avifauna, and he played a major role in acquiring collections of animals and in furthering knowledge of South American natural history. A great many of his vertebrates were sent to Warsaw, including 480 bird species, *c.*200 of which were new for French Guiana and 60 new to science (Wąsowska & Wiszniewska-Ślepińska 1996). Many of the great naturalists of the latter half of the 19th century worked on material Jelski despatched to Europe, dedicating several names in his honour. The mammals were described by K. Peters of Berlin and O. Thomas of the British Museum, birds by W. Taczanowski, P. L. Sclater and O. Salvin of London, and J. L. Cabanis of Berlin, fish, amphibians and reptiles by A. Günther of the British Museum and F. Steindachner of the Natural History Museum, Wien, molluscs by W. Lubomirski, spiders by W. Taczanowski (who described 200 species and nine genera), crustaceans by A. Wrzesniowski of Warsaw University, lepidoptera by C.

Oberthür of Rennes, Staphylinidae by S. Solski of St Petersburg and orthoptera by I. Bolívar of Madrid (Wąsowska & Wiszniewska-Ślepińska 1996).

Jelski's memoirs recount his visit to Grand Connétable in 1867: 'We quickly moved on for all, including the captain, wished to visit Grand Connétable, a rocky islet inhabited by seabirds. We had to arrive there quite early as we were accompanied by an engineer who wished visit the site with a view to constructing a future lighthouse.

'The closer we got to the rock, the more the air was full of birds. When we dropped anchor the birds surrounded us on all sides. Mr Payen, the ship's doctor, started shooting and the birds dropped onto the deck of the boat. The majority were Brown Booby [*Sula leucogaster*]. There were also many Sooty Terns [*Sterna fuscata*] but also frigates [*Fregata magnificens*, of which a juvenile still exists in Warsaw, taken on Grand Connétable in 1867] and Phaetons (*Phaeton aethereus*).'

'After we landed we climbed a grassy slope so densely covered with tern nests that we had to be careful not to tread on the eggs. The sailors filled a few buckets with these eggs. I was greatly saddened by this destruction but it was impossible to explain anything to these simple folk. They could only think of food. They had no interest in birds except insofar as they could eat them. They were totally indifferent to the question of the survival of a species [form]. The men even destroyed more than they could possibly eat. [...]'

'The frigates and the other large birds settled in another place. They permitted themselves be grabbed by the neck or be beaten to death with clubs. I thus managed to catch a fine *Phaeton* that was still alive. It was perched on the edge of a rock in a slightly isolated place. It was a white bird with silky feathers and marked with little perpendicular black lines. It had a powerful reddish beak and two long feathers in its tail'.

The Polish Academy of Science, in Warsaw, has an important collection of specimens that Jelski sent from French Guiana, including 409 birds (D. Mierzwa *in litt.*). Among them are three *Phaeton aethereus*, two of which from French Guiana, described as from 'Cayenna', with one dated 1867 (the third specimen is from Brazil). Formal proof therefore exists as to the species' presence on Grand Connétable in the latter half of the 19th century.

Acknowledgements

Thanks to Liam Gavin for his assistance with the English version of the manuscript and Dr Dominika Mierzwa, Curator of Zoological Collections at the Museum and Institute of Zoology Polish Academy of Science, Warsaw.

References:

Boubier, M. 1925. *L'Evolution de l'Ornithologie*. Librairie Félix Alcan, Paris.

Haverschmidt, F. 1957. Ogier de Gombaud peintre inconnu des oiseaux de Guyane. *L'Oiseau & RFO* 27: 172–178

Jelski, K. 1898. *Popularno-przyrodnicze opowiadania z pobytu w Gujanie francuskiej i po części w Peru (1865–1871)*. Kraków.

Tostain, O., Dujardin, J.-L., Erard, C. & Thiollay, J.-M. 1992. *Oiseaux de Guyane*. Société d'Études Ornithologiques, Paris.

Vuilleumier, F. 2003. Perspectives in Neotropical ornithology: then and now. *Auk* 120: 577–590.

Wąsowska, M. & Wiszniewska-Ślepińska, G. 1996. The history of the collection of Neotropical fauna in the Museum and Institute of Zoology PAS until 1939. *Bull. Mus. & Inst. Zool. Polish Acad. Sci.* 1: 29–34.

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Hybridisation between Common Buzzard *Buteo buteo* and Rough-legged Buzzard *B. lagopus* in Norway

by Jan Ove Gjershaug, Ole Andreas Forset, Kjell Woldvik & Yngve Espmark

Received 10 October 2005

A mixed pair (male) Common Buzzard *Buteo buteo* and (female) Rough-legged Buzzard *B. lagopus* successfully fledged three young near Trondheim in the county of Sør-Trøndelag, central Norway, in summer 2005. *B. lagopus* is a common breeder in this area in years with high numbers of small rodents, and occurs through much of Norway, usually in mountains and higher elevation forests, but sometimes also in lower forested areas. *B. buteo* has not previously been found nesting in Sør-Trøndelag county, although some previous observations are suggestive of breeding, and there is a confirmed nesting in Nord-Trøndelag county. In Norway, the species occurs in lowlands of the south and south-east (Gjershaug *et al.* 1994).

There are very few records of mixed pairs of *Buteo* species in the wild (Gray 1958, Panov 1998, Clark & Witt in press). An escaped Red-tailed Hawk *B. jamaicensis* mated with a *B. buteo* and produced fertile eggs in Scotland in 1969 (Murray 1970), and a mixed pair, involving a presumed escaped Red-backed Hawk *B. polyosoma* and a Swainson's Hawk *B. swainsoni* bred for more than eight years in Colorado, USA (Allen 1988, Wheeler 1988). Hybridisation between *B. lagopus* and Swainson's Hawk was documented in Louisiana, USA, based on DNA analysis of a specimen (Clark & Witt in press), a probable hybrid between the same two species was photographed in Texas, and hybrids between *B. lagopus* and *B. jamaicensis* described from Colorado and California (Clark *et al.* in prep.). Mixed pairing of Red-shouldered Hawk *B. lineatus* and Grey Hawk *B. nitidus* has been reported from Texas (Lasley 1989). Hybridisation between Upland Buzzard *B. hemilasius* and Long-legged Buzzard *B. rufinus* is known from Central Asia

(Pfander & Schmigalew 2001). Gray (1958) listed alleged hybrids between *B. lagopus* and *B. buteo*, but regarded them as conjectural. Here we present the first proof of such hybridisation.

Study area and methods

The study area, near Trondheim, Sør-Trøndelag, central Norway, lies at *c.*200 m and is dominated by old spruce forest within a mosaic of pine forest on cliffs, open bogs, clear-fellings and small lakes. The nest was on a ledge of a small cliff, a typical location for *B. lagopus*, and was found by OAF on 4 June. When visited on 15 July, the three juveniles, now *c.*40 days old, had left the nest but were still nearby. Photographs were taken with a Nikon Coolpix 4500 digital camera through a Swarovski telescope. Tape-recordings of the begging calls of the juveniles were made with a Sony tape-recorder (TC-D5 PRO) and Telinga parabolic microphone (PRO III). For comparison, tape-recordings of juvenile calls of *Buteo buteo* of the same age were obtained from the British Library Sound Archive (London, UK). Sonograms were obtained using a KAY Elemetrics DSP Sonagraph model 5500. The pitch (highest frequency) was measured to the nearest 0.01 kHz and note length to the nearest 0.01 second. The calls of the hybrids were compared with similar calls of juvenile *B. lagopus* and *B. buteo* of the same age (*c.*40 days).

Results

Identification of the parents

The adults were identified as a typical female *B. lagopus* with a white tail, broad subterminal band and one additional dark bar inside it (Fig. 1), and a typical brown male of *B. buteo* with bare yellow tarsi (Fig. 2). Sexing of the *B. buteo* was based on the other bird being female. Sexing based on plumage is impossible in *B. buteo* (Forsman 1999).

Description of the hybrid juveniles

The hybrids had intermediate characters. They were very similar, except that the amount of white on some of the tail-feathers varied slightly. One juvenile had one partially white tail-feather (Fig. 3), whilst another had two partly white tail-feathers. The dark belly (Fig. 4) resembled *B. lagopus*. The partially feathered tarsi (Fig. 5) were intermediate between the two species, except that juvenile *B. lagopus* has only sparse dark markings on the tarsal feathers (Fig. 6). The brown tail with several dark bars (Fig. 7) and dark brown mantle and upperwing-coverts (Fig. 8) resembled *B. buteo*. The underwing-coverts had more dark spots than in juvenile *B. lagopus*. The hybrids lacked the pale basal area on the upper primaries and median coverts typical of juvenile *B. lagopus*, and were darker headed than juvenile *B. lagopus*.

Figure 1. The female *Buteo lagopus* (Jan Ove Gjershaug)
Figure 2. The male *Buteo buteo* (Jan Ove Gjershaug)
Figure 3. Hybrid juvenile with one partially white tail-feather (Jan Ove Gjershaug)
Figure 4. The hybrids had dark bellies similar to juvenile *B. lagopus* (Jan Ove Gjershaug)

Figure 5. The legs of the hybrids were partially feathered, with heavy dark markings (Jan Ove Gjershaug)
Figure 6. The legs of juvenile *B. lagopus* have sparse dark markings (Jan Ove Gjershaug)
Figure 7. The tail-feathers of the hybrids had several dark bands similar to juvenile *B. buteo* (Jan Ove Gjershaug)
Figure 8. The hybrids lacked the broad pale-fringed median covert patch typical of juvenile *B. lagopus* (Jan Ove Gjershaug)

TABLE 1

Frequency, note length and distribution of identified call types in 40-day-old juveniles of *Buteo lagopus* × *B. buteo*, *Buteo lagopus* and *Buteo buteo*. *n* = number of analysed sonograms.

		Buteo lagopus x *B. buteo*	*Buteo lagopus*	*Buteo buteo*
Frequency (kHz)	Mean±SD	3.17±0.17	2.76±0.22	2.40±0.23
	Range	2.68–3.28	2.28–3.12	2.16–2.68
	n	12	20	4
Note length (s)	Mean±SD	0.83±0.15	1.05±0.11	0.73±0.21
	Range	0.70–1.14	0.86–1.29	0.42–0.89
	n	12	19	4
Distribution of call type (%)	I	34	54	
	II	54	17	
	III	12	29	
	n	100	100	

The food-begging calls

The begging calls of the hybrids were very similar to those of Rough-legged Buzzard (Fig. 9, Table 1). On the basis of the spectrograph, the calls were assigned to one of two types: unmodulated whistles (I) and double whistles (II). The latter were characterised by a sudden frequency rise at the start and a corresponding drop at the end. Most calls were somewhat higher pitched and rather shorter than those uttered by juvenile *B. lagopus*. In addition, the juveniles had calls that were incomplete variants between the two types, which were pooled into a third type (III). The recorded calls of juvenile Common Buzzard are all of the same type and bear no resemblance to those of the hybrids (Fig. 9).

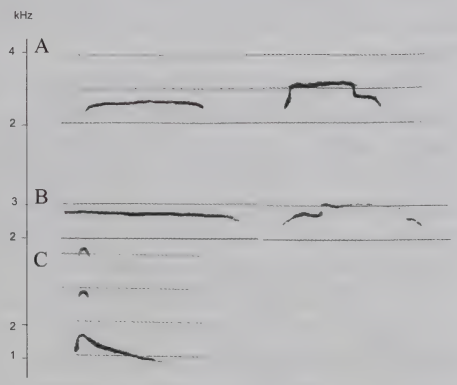

Figure 9. Sonograms of the calls of the juvenile hybrids between *Buteo lagopus* and *B. buteo* (A), and for comparison juvenile *B. lagopus* (B) and juvenile *B. buteo* (C). The notes on the left are of type I, those on the right of type II for the hybrids and *Buteo lagopus*.

Discussion

Buteo buteo and *B. lagopus* are not close relatives (Riesing *et al.* 2003, Kruckenhauser *et al.* 2004) and hybridisation between them has, to our knowledge, never been reported. Their ranges overlap only in Fennoscandia (Cramp 1980,

Ferguson-Lees & Christie 2001) and, in the main, they use different breeding habitats. *B. lagopus* prefers open tundra and mountains, penetrating the coniferous taiga zone. In Norway, it now also breeds near clear-fellings in coniferous forest and appears to have increased in lowland areas, probably due to such habitat change (Gjershaug *et al.* 1994). *B. buteo* prefers predominantly deciduous forests, but also breeds in pure coniferous stands close to open areas such as clear-fells, bogs, meadows and pastures. Possibly changes in forestry practice, with more clear-fellings since the 1960s, have brought the two species into closer contact. *B. lagopus* is the larger of the two and probably dominant, although there is probably little competition for nest sites, as *B. lagopus* usually nests on cliffs and *B. buteo* in trees. In Vestfold county, southern Norway, *B. lagopus* usually nests above 350 m and *B. buteo* only below that (Steen 1993).

Normally, reproductive isolation mechanisms should prevent interbreeding between these two species. One such mechanism is probably their different vocalisations (Cramp & Simmons 1980). A possible explanation for the present case is that the female *B. lagopus* had previously occupied the nest in the breeding cliff and had been unsuccessful in acquiring a mate due to a shortage of unpaired males, leading the female to accept the male *B. buteo*. Males are typically less 'choosy' in mate selection, and a *B. buteo* would have difficulty finding a conspecific mate in this area.

Most plumage characters of the juveniles are intermediate between *B. lagopus* and *B. buteo*, but the heavy dark markings on the tarsus differ strikingly from both parent species, as juvenile *B. lagopus* has only sparse dark markings on the tarsus and *B. buteo* a bare tarsus. The same is described for the hybrid *B. lagopus* x *B. swainsoni* by Clark & Witt (in press), who explain the dark-pigmented tarsus of their hybrid specimen as a possibly transgressive trait, caused by complementary gene action, overdominance or epistasis.

The calls of the juveniles were most similar to those of juvenile *B. lagopus* at the same age. They had very similar notes, but the distribution of the three categories differed. The calls of juvenile *B. buteo* are different, so we can conclude that the calls of the juveniles are not intermediate between the two species. In most non-passerine hybrids calls are intermediate between those of the parents (Payne 1986). For such comparisons to be meaningful, it is essential to sample birds of the same age. The vocalisation of *B. buteo* changes greatly up to 40 days (Glutz von Blotzheim *et al.* 1989).

Using molecular techniques it should be possible to test for any introgression of genes from one species into the population of the other in the area of overlap. Clark & Witt (in press) reidentified a museum specimen, initially identified as *B. lagopus*, as a *B. lagopus* x *B. swainsoni* using DNA, thereby documenting the first confirmed hybrid specimen in *Buteo*.

There are very few records of mixed pairs of other raptors in the wild (Gray 1958, Newton 1979, Panov 1998). Hybridisation between *Buteo buteo* and Black Kite *Milvus migrans* is known from Italy (Corso & Forsman 1997, Corso & Gildi

1998), Red Kite *Milvus milvus* × *M. migrans* in Germany and Sweden (Wobus & Creutz 1970, Sylvén 1977), Montagu's Harrier *Circus pygargus* × Pallid Harrier *C. macrourus* in Finland (Forsman 1993, 1995), Eastern Marsh Harrier *C. spilonotus* x Western Marsh Harrier *C. aeruginosus* in Siberia (Fefelov 2001) and Grey Goshawk *Accipiter novaehollandiae* × Brown Goshawk *A. fasciatus* in Australia (Cupper 1976, Olsen & Olsen 1985). A hybrid Shikra *Accipiter badius* × Levant Sparrowhawk *A. brevipes* has been reported in Israel (Yosef *et al.* 2001). Hybridisation between Greater Spotted Eagle *Aquila clanga* and Lesser Spotted Eagle *A. pomarina* is known in Estonia, Latvia, Germany, Poland and Belarus (Lõhmus & Väli 2001, Dombrovski 2002, Helbig *et al.* 2005). A possible hybrid Rüppell's Vulture *Gyps rueppelli* × Cape Vulture *G. coprotheres* was observed in Botswana (Borello 2001), and a female–female pairing between a Peregrine Falcon *Falco peregrinus* and Gyrfalcon *F. rusticolus* was recorded in two successive years in Norway (Gjershaug *et al.* 1998).

Acknowledgements

Many thanks to Dick Forsman and Bill Clark for comments on an early draft of this paper, Tycho Anker-Nilssen for help with the sonograms, and Duncan Halley for improving the language. We are also indebted to The British Library Sound Archive for placing tape-recordings of juvenile calls of *Buteo buteo* at our disposal.

References:

Allen, S. 1988. Some thoughts on the identification of Gunnison's Red-backed Hawk (*Buteo polysoma*) and why it's not a natural vagrant. *Colorado Field Orn. J.* 22: 9–14.

Borello, W. 2001. A possible hybrid vulture at Mannyelanong Cape Vulture *Gyps coprotheres* colony, southeastern Botswana. *Babbler* 38: 19–21.

Clark, W. S. & Witt, C. C. in press. First known specimen of a hybrid *Buteo*: Swainson's Hawk (*Buteo swainsoni*) x Rough-legged Hawk (*B. lagopus*) from Louisiana. *Wilson Bull.*

Corso, A. & Forsman, D. 1997. Hybrids between Black Kite and Common Buzzard. *Alula* 3: 44–45.

Corso, A. & Gildi, R. 1998. Hybrids between Black Kite and Common Buzzard in Italy in 1996. *Dutch Birding* 20: 226–233.

Cramp, S. & Simmons, K. E. L. (eds.) 1980. *The birds of Western Palearctic*, vol. 2. Oxford Univ. Press.

Cupper, J. 1976. Interbreeding of brown goshawk and white goshawk. *Austral. Bird Watcher* 6: 306–310.

Dombrovski, V. C. 2002. Hybridization of lesser and greater spotted eagles (*Aquila pomarina* and *A. clanga*) in Belarus: rule or exception? *Subbuteo* 5: 23–31.

Dudás, M., Tar, J. & Tóth, I. 1999. [Natural hybridization of Long-legged Buzzard (*Buteo rufinus*) and Common Buzzard (*B. buteo*) in Hortobágy National Park.] *Ölyvek "keveredése" Temészet* 5–6: 8–10. [In Hungarian.]

Fefelov, I. 2001. Comparative breeding ecology and hybridization of Eastern and Western Marsh Harriers *Circus spilonotus* and *C. aeruginosus* in the Baikal region of eastern Siberia. *Ibis* 143: 587–592.

Ferguson-Lees, J. & Christie, D. A. 2001. *Raptors of the world*. Christopher Helm, London.

Forsman, D. 1993. Hybridising harriers. *Birding World* 6: 313.

Forsman, D. 1995. Male Pallid and female Montagu's Harrier raising hybrid young in Finland in 1993. *Dutch Birding* 17: 102–106.

Forsman, D. 1999. *The raptors of Europe and the Middle East*. Academic Press, London.

Gjershaug, J. O., Thingstad, P. G., Eldøy, S. & Byrkjeland, S. (eds.) 1994. [*Norwegian bird atlas. Distribution and population estimates of breeding birds in Norway.*] Norsk Ornitologisk Forening, Oslo. [In Norwegian.]

Gjershaug, J. O., Folkestad, A. O. & Goksøyr, L. O. 1998. Female–female pairing between a Peregrine Falcon *Falco peregrinus* and a Gyrfalcon *F. rusticolus* in two successive years. *Fauna Norvegica Ser. C, Cinclus* 21: 87–91.

Glutz von Blotzheim, U. N., Bauer, K. M. & Bezzel, E. (eds.) 1989. *Handbuch der Vögel Mitteleuropas*, vol. 4. AULA-Verlag, Wiesbaden.

Gray, A. P. 1958. *Bird hybrids. A check-list with bibliography*. Tech. Comm. 13. Commonwealth Bureau of Animal Breeding & Genetics, Edinburgh.

Helbig, A. J., Seibold, I., Kocum, A., Liebers, D., Irwin, J., Bergmanis, U., Meyburg, B.-U., Scheller, W., Stubbe, M. & Bensch, S. 2005. Genetic differentiation and hybridization between greater and lesser spotted eagles (Accipitriformes: *Aquila clanga*, *A. pomarina*). *J. Orn.* 146: 226–234.

Kruckenhauser, L., Haring, E., Pinsker, W., Riesing, M. J., Winkler, H., Wink, M. & Gamauf, A. 2004. Genetic vs. morphological differentiation of Old World buzzards (genus *Buteo*, Accipitridae). *Zool. Scripta* 33: 197–211.

Lasley, G. 1989. Texas. *Amer. Birds* 43: 505.

Lõhmus, A. & Väli, Ü. 2001. Interbreeding of the Greater *Aquila clanga* and Lesser Spotted Eagle *A. pomarina*. *Acta Ornithoecol.* 4: 377–384.

Olsen, P. D. & Olsen, J. 1985. A natural hybridization of the brown goshawk *Accipiter fasciatus* and grey goshawk *A. novaehollandiae* in Australia, and a comparison of the two species. *Emu* 85: 250–257.

Payne, R. B. 1986. Bird songs and avian systematics. Pp. 87–126 *in* Johnston, R. F. (ed.) *Current ornithology*, vol. 3. Plenum Press, New York.

Pfander, P. & Schmigalew, S. 2001. [Extensive hybridization of Long-legged Buzzard *Buteo rufinus* and Upland Buzzard *B. hemilasius*.] *Orn. Mitt.* 53: 344–349. [In German.]

Panov, E. N. 1989. [*Natural hybridisation and ethological isolation in birds*.] Nauka, Moscow [In Russian with English summary.]

Riesing, M. J., Kruckenhauser, L., Gamauf, A. & Haring, E. 2003. Molecular phylogeny of the genus *Buteo* (Aves: Accipitridae) based on mitochondrial marker sequences. *Mol. Phyl. & Evol.* 27: 328–342.

Steen, O. F. 1993. [Rough-legged Buzzard: regular breeding bird in Vestfold.] *Fauna* 46: 22–26. [In Norwegian.]

Sylvén, M. 1977. [Hybridization between Red Kite *Milvus milvus* and Black Kite *M. migrans* in Sweden in 1976.] *Vår Fågelvärld* 36: 38–44. [In Swedish with English summary.]

Wheeler, B. K. 1988. A Red-backed Hawk in Colorado. *Colorado Field Orn. J.* 22: 5–8.

Wobus, U. & Creutz, G. 1970. Eine erfolgreiche Mischbrut von Rot- und Schwarzmilan (*Milvus milvus* x *Milvus migrans*). *Zool. Abh. Mus. Tierk. Dresden* 31: 305–313.

Yosef, R., Helbig, A. J. & Clark, W. S. 2001. An intrageneric *Accipiter* hybrid from Eilat, Israel. *Sandgrouse* 23: 141–143.

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Bulletin of the British Ornithologists' Club
ISSN 0007-1595
Edited by Guy M. Kirwan
Volume 126, Number 1, pages 1–80

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Printed on acid-free paper.
Published by the British Ornithologists' Club
Typeset by Alcedo Publishing of Pennsylvania, USA, and printed by Crowes of Norwich, UK